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3618

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PTO/SB/21 (08-00)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/207,634
Filing Date	12/09/98
First Named Inventor	Joseph J. Berke
Group Art Unit	3618
Examiner Name	Bridget Avery
Total Number of Pages in This Submission	125
Attorney Docket Number	1374-098

#15

ENCLOSURES *(check all that apply)*

- [X] Fee Transmittal Form
  - [X] Fee Attached
- [ ] Amendment / Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance Communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [X] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)* in triplicate
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) *(please identify below)*:

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Alex Rhodes, Reg. No. 26,797
Signature	Alex Rhodes
Date	September 20, 2001

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 09/20/2001

Typed or printed name	Alex Rhodes		
Signature	Alex Rhodes	Date	Sept. 20, 2001

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FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT	($) 155.00

Complete if Known	
Application Number	09/207,634
Filing Date	12/09/98
First Named Inventor	Joseph J. Berke
Examiner Name	Bridget Avery
Group Art Unit	3618
Attorney Docket No.	1374-098

METHOD OF PAYMENT

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 18-1166

Deposit Account Name: Alex Rhodes

☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

☒ Applicant claims small entity status. See 37 CFR 1.27

2. ☒ **Payment Enclosed:**

☒ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES

	Extra Claims		Fee from below		Fee Paid
Total Claims		-20** =		X	=
Independent Claims		- 3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	155
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 155

SUBMITTED BY

Complete *(if applicable)*

Name (Print/Type)	Alex Rhodes	Registration No. (Attorney/Agent)	26,797	Telephone	248-646-4400
Signature	Alex Rhodes			Date	9-20-01

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

#15 Brief
Office 9-28-01 SW

Ex parte JOSEPH J. BERKE et al.

Application No. 09/207,634
Appeal No. _____

BRIEF OF APPELLANTS

Commissioner for Patents
Washington, D.C. 20231

Sir:

This is an appeal under 35 U.S.C. §134 of the Examiner's final rejection of claims 5-10, 12-14 and 20-28. Apparatus claims 1-4 and method claims 15-19 were canceled without prejudice under a restriction requirement, as claims drawn to other classes. Claim 11 was allowed. The Brief is filed in triplicate and is accompanied by the requisite fee set forth in § 1.17(f).

TABLE OF CONTENTS

TABLE OF AUTHORITIES

(2)

REAL PARTY IN INTEREST

The parties identified in the caption of the Brief are the real parties in interest pursuant to 37 CFR § 1.192(c)(1).

(3)

RELATED APPEALS AND INTERFERENCES

This application has been assigned. There are no appeals or interferences, pursuant to 37 CFR § 1.192(c)(2) which are known to Appellants, the Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(4)

STATUS OF CLAIMS

There were two final rejections. In the first final rejection, claims 5-7, 10, 12, 20, 24, 25, 27 and 28 were rejected under 35 U.S.C. 102(b) as being anticipated by Mascio (Italian Patent 574,172); claims 8 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mascio ('172) in view of Perez ('889); claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson ('434) and Harmon et al. ('041) as applied to claim 5, and further in view of Hsieh et al. ('037); and claims 21-23 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson ('434) and Harmon et al. ('041) as applied to claim 5, and further in view of White ('950).

The Examiner withdrew the final rejection and issued a second final rejection supported by other references after Applicants forwarded a translation of Mascio which showed that Mascio did not apply to the claimed inventions. Copies of Mascio and the translation are in the Appendix. The second final rejection of claims 5-10, 12-14, and 20-28 is the subject of this appeal.

(5)

THE EXAMINER'S REFERENCES

The references of record which were relied on by the Examiner as evidence of obviousness are:

	U.S. Patents	
Hsieh, et al.	5,951,037	09/1999
Faraj	5,697,624	12/1997
White	5,621,950	04/1997
Brown	5,301,393	04/1994
Perez	4,989,889	02/1991
Anderson	4,448,434	05/1984
Arias et al.	4,261,447	04/1981
Smith	4,044,784	08/1977
Harmon	524,041	08/1894

(6)

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the most recent final rejection.

(7)

SUMMARY OF THE INVENTION

This invention relates to carriers and more particularly to a wheeled cart 51 with a removable carrier 50 for closing and transporting closed bags or sacks, filled with loose or granular materials, such as salt, sand, trash, fertilizer and cement (page 7, lines 17-24). The carrier 50 and cart 51 are depicted in Figures 7 through 18 of the drawings. The object of the invention is to replace the current practices of cradling, gripping and resting large bags on shoulders which are often open and cause spillage, soiled clothes and/or physical injuries. This condition is particularly serious with women and elderly persons who constitute an increasing portion of the population. Heavy bags and sacks need only to be elevated by a small amount to transport them with the invention. Open bags are closed and clamped in a pair of jaws 55, 61 with eye bolts 62 and thumb screws 63.

The cart 51 is a 2-wheel cart (Figures 10-12) having a foldable lower shelf 54 (Figures 11-12) and its height is adjustable such that different bags can be placed on the shelf 54 and gripped by the carrier 50 (page 7, lines 22-24). The carrier 50 has a pair of elongated pivotally connected jaws 55, 61 and a handle formed in one of the jaws 55. At least one of the elongated jaws 55, 61 has a plurality of small pointed tabs 33 which protrude for gripping bags (Figures 7-8). An important feature is that the carrier 50 can

be detached and used separately. The manner of using the carrier 50 and cart 51 is shown in Figures 16 and 18. The foldable design facilitates storage and transportation of the carrier 50 and cart 51.

(8)

ISSUES (37 C.F.R. 1.192(c)(4)

Issue: Whether the claims on appeal are obvious in view of the references under 35 U.S.C. 103(a).

Applicant says NO

(9)

GROUPING OF CLAIMS (37 C.F.R. 1.192(c)(5)

Group I - Claims 5-9, 12, 24 and 27

Group II - Claim 13

Group III - Claims 10, 14, 25 and 28.

Group IV - Claims 20, 21, 22, 23, 26

(10)

ARGUMENT 1.192(c)(6)

Claims 5-8 and 24-28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) in view of White ('950) and alternatively over Faraj ('624) in view of Brown ('393). Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over

Faraj ('624) in view of White ('950) and further in view of Arias et al ('447) and alternatively over Faraj ('624) in view of Brown ('393) and further in view of Arias et al. ('447). Claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) in view of White ('950) and alternatively over Faraj ('624) in view of Brown ('393). Claim 13 was rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) in view of Brown ('393).

It is evident from the references that the Examiner failed to view the claimed inventions as a whole, employed impermissible hindsight vision and should be reversed for the following reasons. (Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966); M.P.E.P. § 2.141). None of the cited references disclose carts for transporting closed bags or sacks.

Faraj ('624), the principal reference, discloses a shopping cart 10 which resembles a walking cane. The cart is comprised of a single support member 12, a single wheel 20, a curved handle 24 similar to an umbrella or cane, U-shaped or J-shaped hooks 26 for hanging bags attached to an intermediate portion of the support member 12 and a hinged bracket 30 for supporting a container such as a carton of soft drinks.

Brown ('393), a secondary reference, discloses a small spring biased clip for combining sheets of paper and sealing bags (Fig. 12; col. 3, lines 56-57).

Arias et al. ('447), a secondary reference, discloses a 2-wheel cart with a U-shaped base 54 for transporting luggage.

Smith ('784), a secondary reference, discloses a walking aid cane with a telescoping support member.

White ('950), a secondary reference, discloses a small clip with protusions 38 for holding sheets of paper together (col. 1, lines 10-20 and col. 1, lines 50-56).

Perez ('889) discloses a 2-wheel foldable shopping cart with a lower portion of a bag 6 attached to a base 5 and an upper portion of the bag 6 attached to a frame 1.

Hsieh ('037) discloses a 2-wheel foldable cart for transporting luggage.

Harmon et al. ('041) discloses a 2-wheel bag holder for transporting open bags.

Anderson ('434) discloses a foldable 2-wheel hand truck for transporting open bags.

Neither Faraj ('624), Arias et al. ('447), Brown ('393) or White ('950) suggest or provide motivation for combining the clips of Brown ('393) or White ('950) with the shopping cart of Faraj ('624) or Arias et al. ('447). Faraj ('624) teaches away from this modification by providing hooks for carrying bags. Faraj's ('624) main object is to provide a compact cart that is easy to store (col. 1, lines 35-37). Nor do Brown ('393) or White ('950) suggest or provide an incentive or motivation for adding a wheeled cart such as Faraj ('624) or Arias et al. ('447). Nor do Faraj ('624) or Arias et al. ('447) suggest or provide motivation or for the addition of the telescopic feature of Smith ('784). Nor do Faraj ('624) or Arias et al. ('447) suggest or provide motivation for the addition of a detachable carrier. Nor do any of the references suggest or provide motivation for replacing the curved handle of Faraj ('624) with the clip of White ('950) or Brown ('393). Perez ('889) and Harmon et al ('041), the two references which disclose bag carrying carts, teach away from a carrier for transporting closed bags.

The Group I claims 5-9, 12, 24 and 27 are drawn to the combination of a cart and carrier and are patentably distinguishable from the applied references by the positive

limitations of the carrier having a pair of jaws for clamping an upper portion of a closed bag or sack and a handle attached to one of the jaws.

The Group II claim 13 which depends from claim 5 is patentably distinguishable from the applied references by the same positive limitations as the Group I claims and additional limitation of a pair of bolts and thumb nuts for clamping the jaws.

The Group III claims 10, 14 and 28 which are drawn to the combination of a cart and a carrier are patentably distinguishable from the applied references by the positive limitations of a detachable carrier having a pair of jaws for clamping an upper portion of a closed bag or sack.

The Group IV claim 20 which is drawn to the combination of a cart and a carrier is patentably distinguishable from the applied references by the positive limitations of a cart with a releasable carrier having a pair of jaws with gripping surfaces for clamping an upper portion of a closed bag or sack.

Claim 20, which depends from claim 5, covers the broad concept of a jaw with a gripping surface. Claims 22, 23 and 26 place limits on the gripping surface.

In Interconnect Planning Corporation v. Feil, et al. 774 F.2d 1132, 227 USPQ 543 the Federal Circuit said: "Not only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time--a technician without our knowledge of the solution."

In In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed.Cir.19), the Federal Circuit said: "The mere fact that the prior art could be so modified would not have made the

modification obvious unless the prior art suggested the desirability of the modification. See Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 787, 218 USPQ 698, 702 (Fed.Cir.1983), and In re Sernaker, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed.Cir.1983), both citing In re Imperato 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973)".

The Examiner has fallen victim to what the Federal Circuit has characterized as "the insidious effect of a hindsight syndrome wherein that which only the inventor has taught is used against its teacher." W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). The Examiner relied on the paper clips of Brown ('393) and White ('950) which are intended to hold sheets of paper together to modify the shopping cart of Faraj ('624) in which bags are hung on hooks without identifying motivation or incentive in the prior art.

CONCLUSION

It is evident that the Examiner's rejections violate 35 U.S.C. 103 and M.P.E.P § 2141 and should be reversed. The weight of the evidence shows that the Examiner improperly determined the level of ordinary skill in the art and applied "impermissible hindsight" rather than the requirements of 35 U.S.C. 103 and M.P.E.P § 2141.

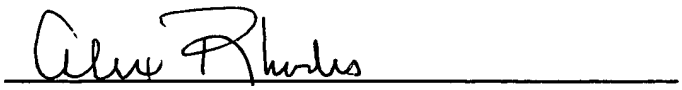
Although an Examiner is a person skilled in the art of examining patents, obviousness rejections under 35 U.S.C. 103 must be based on what is obvious to a "person having ordinary skill in the art" rather than what is obvious to an Examiner after having the benefit of an Applicants' disclosure. In Interconnect Planning Corporation v. Feil, et al., 774 F.2d 1132, 227 USPQ 543 (Fed. Cir. 1985), the Federal Circuit said:

> "The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."

The Federal Circuit has held that complexity is not an indicia of non-obviousness. In In re Horn et al., 203 USPQ 909 (CCPA 1979), a decision which involved a simple invention, the Court said, "simplicity and hindsight are not proper criteria for resolving the obviousness issue". The Examiner failed to appreciate that Faraj ('624), the most relevant reference, taught away from Applicants' invention rather than providing an incentive for practicing the invention.

In view of the foregoing, it is requested that the Board affirm the correctness of Applicants' position and lift the Examiner's 35 U.S.C. 103(a) rejections of the claims.

Respectfully submitted,



Alex Rhodes, Reg. No. 26,797
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Dated: September 20, 2001

CLAIMS ON APPEAL

5. In combination with a cart, a carrier mounted on an upper portion of said cart for transporting a closed bag or sack, said carrier having a pair of elongated jaws, and a means for clamping said jaws to and releasing said jaws from an upper portion of said closed bag or sack, and a handle attached to at least one of said jaws.

6. The combination set forth in claim 5 wherein said cart is a 2-wheel cart.

7. The combination set forth in claim 5 wherein said cart has a lower shelf for supporting said bag or sack,

8. The combination set forth in claim 7 wherein said shelf is selectively foldable from a vertical stored position to a horizontal load supporting position.

9. The combination set forth in claim 7 wherein said shelf is outwardly adjustable.

10. The combination set forth in claim 5 wherein said carrier is detachable from said 2-wheel cart.

12. The combination set forth in claim 5 wherein said cart has a height which is adjustable.

13. The combination set forth in claim 5 wherein said means for clamping said carrier to said bag or sack comprises a pair of bolts, each having one end portion pivotally attached to an end portion of one of said jaws and a thumb nut for engaging an opposite end portion of another of said jaws.

14. In combination, a 2-wheel cart, said cart having a tubular frame which is vertically adjustable, and a pivotable lower shelf portion attached to said frame which is selectably foldable from a vertical stored non-load supporting position to a horizontal load supporting position, and a carrier detachably mounted on an upper portion of said cart for transporting a closed bag or sack, said carrier having a pair of elongated jaws, each of said jaws having a gripping surface for clamping said jaws to and releasing said jaws from an upper portion of said closed bag or sack, a means for said clamping and releasing said jaws from said upper portion of said closed bag or sack, and a handle attached to said carrier.

20. The combination set forth in claim 5 wherein at least one of said jaws has a gripping surface for retaining and supporting said upper portion of said closed bag or sack.

21. The combination set forth in claim 5 wherein said gripping surface of said jaw

is comprised of a plurality of small outward extending portions for retaining and supporting said closed bag or sack.

22. The combination set forth in claim 5 further comprising a thin metal strip attached to at least one of said jaws, said metal strip having a plurality of outward extending tabs for forming a gripping surface to retain and support said closed bag or sack; a means for clamping said jaws to and releasing said jaws from said upper portion of said closed bag or sack; and a handle attached to said carrier.

23. The combination as set forth in claim 22 wherein said outward extending tabs are triangular.

24. In combination, a cart having at least one pair of wheels for transporting said cart and a carrier mounted on said cart for supporting an upper portion of a closed bag or a sack on said cart, said carrier having a pair of jaws for clamping said upper portion of said closed bag or sack to said carrier; and a means for said clamping and said releasing of said jaws from said upper portion of said closed bag or sack.

25. The combination set forth in claim 24 wherein said carrier is detachably mounted on said cart.

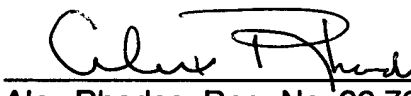
26. The combination set forth in claim 24 wherein at least each of said jaws has

a plurality of outward extending tabs for gripping said upper portion of said closed bag or sack.

27. The combination set forth in claim 24 further comprising a handle attached to said carrier.

28. In combination, a cart having at least one pair of wheels for transporting said cart and a closed bag or sack supporting carrier mounted on said cart for supporting an upper portion of a large closed bag or a sack containing quantities of loose and granular products, such as sand and trash on said cart, said closed bag or sack supporting carrier being releasable from said cart and having a pair of jaws for clamping and releasing said upper portion of said closed bag or sack from said carrier to carry .

Respectfully submitted,



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Dated: September 20, 2001

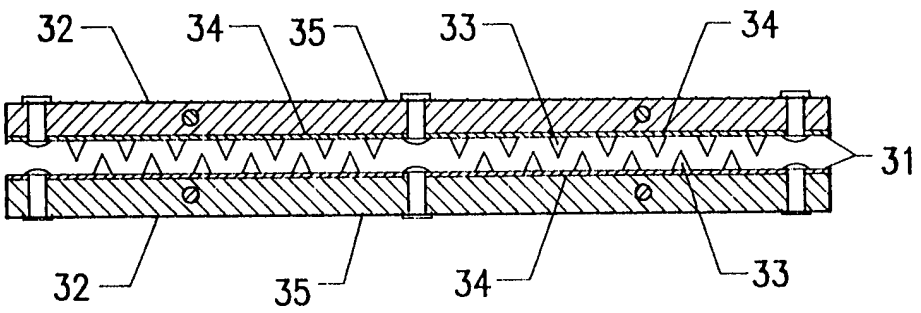

FIG. 4

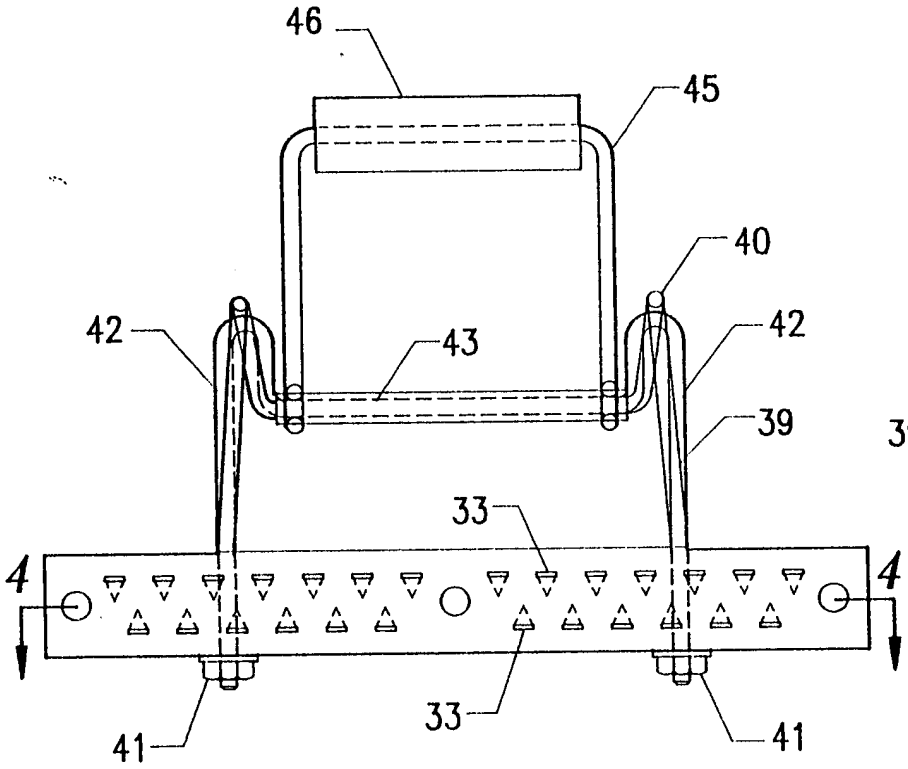

FIG. 1

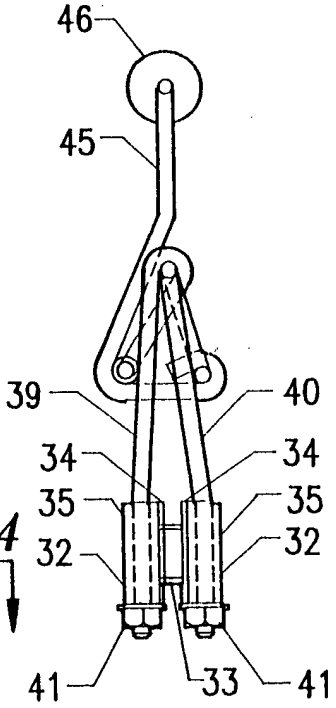

FIG. 2

30

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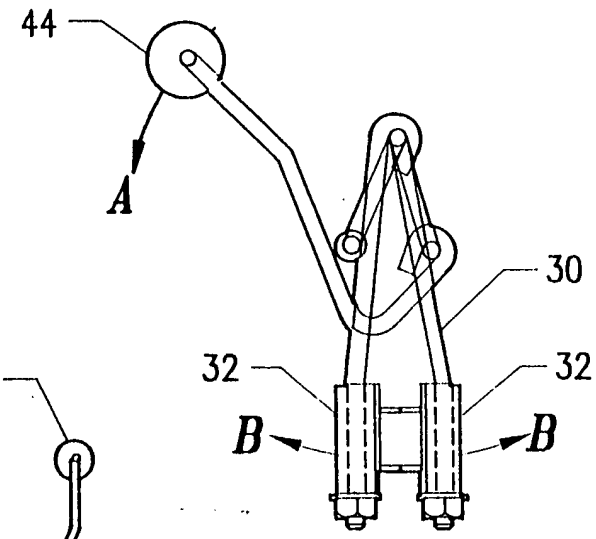


FIG. 3

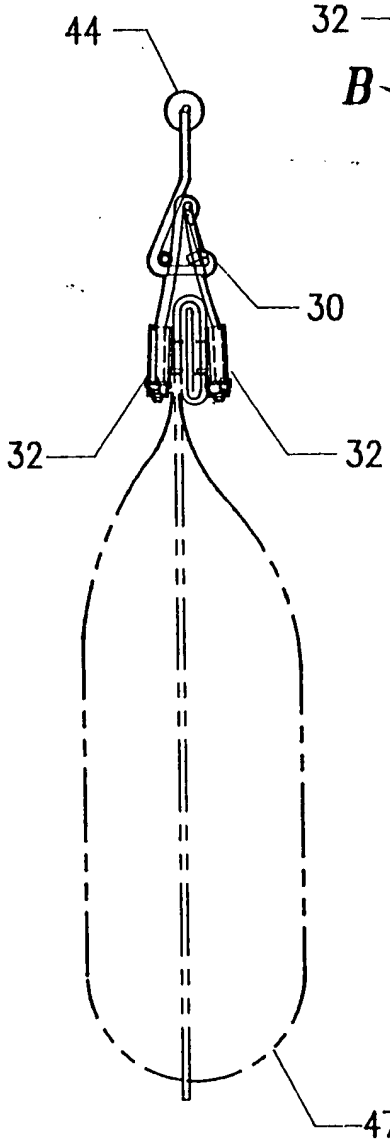


FIG. 6

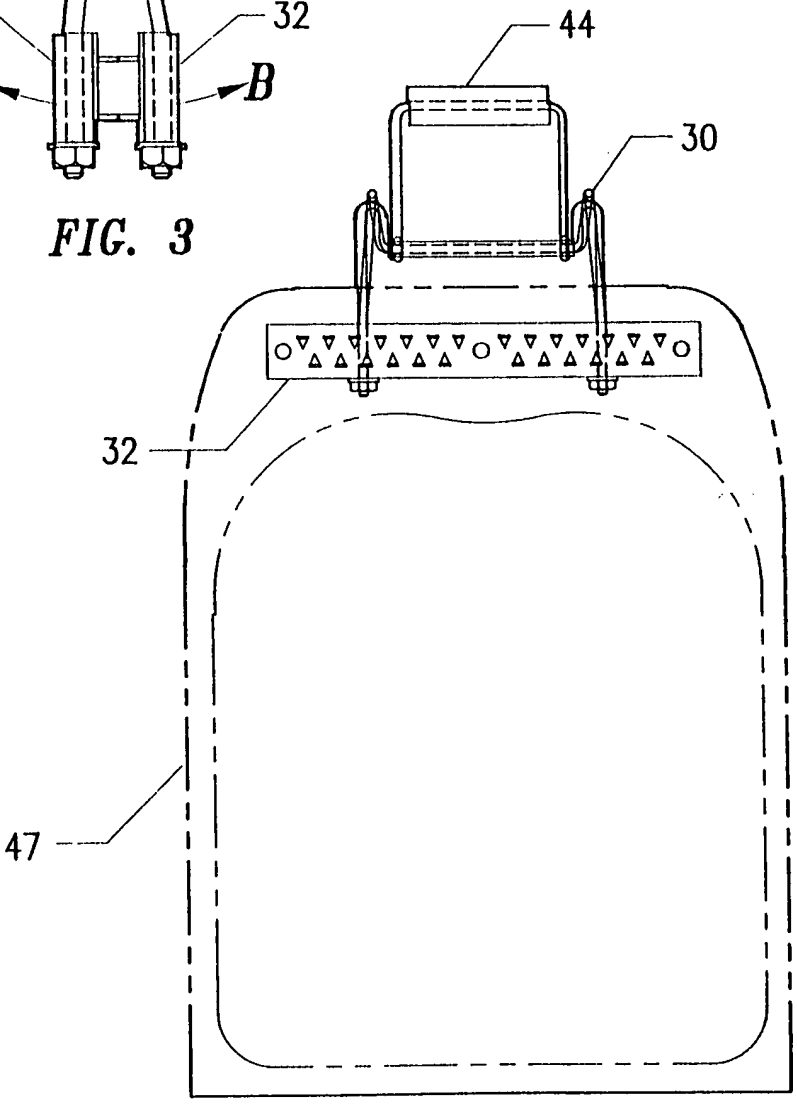


FIG. 5

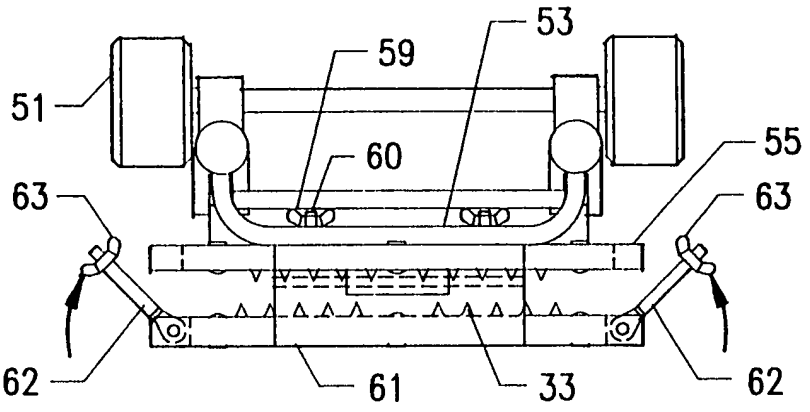


FIG. 7

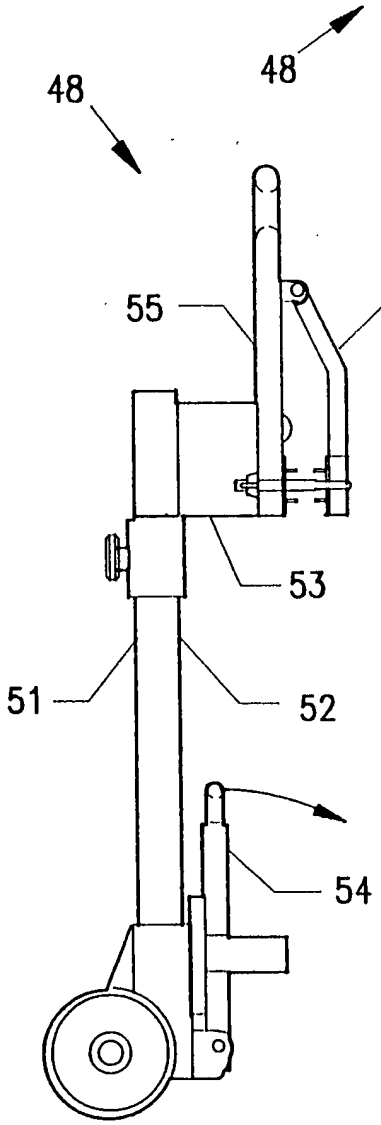


FIG. 9

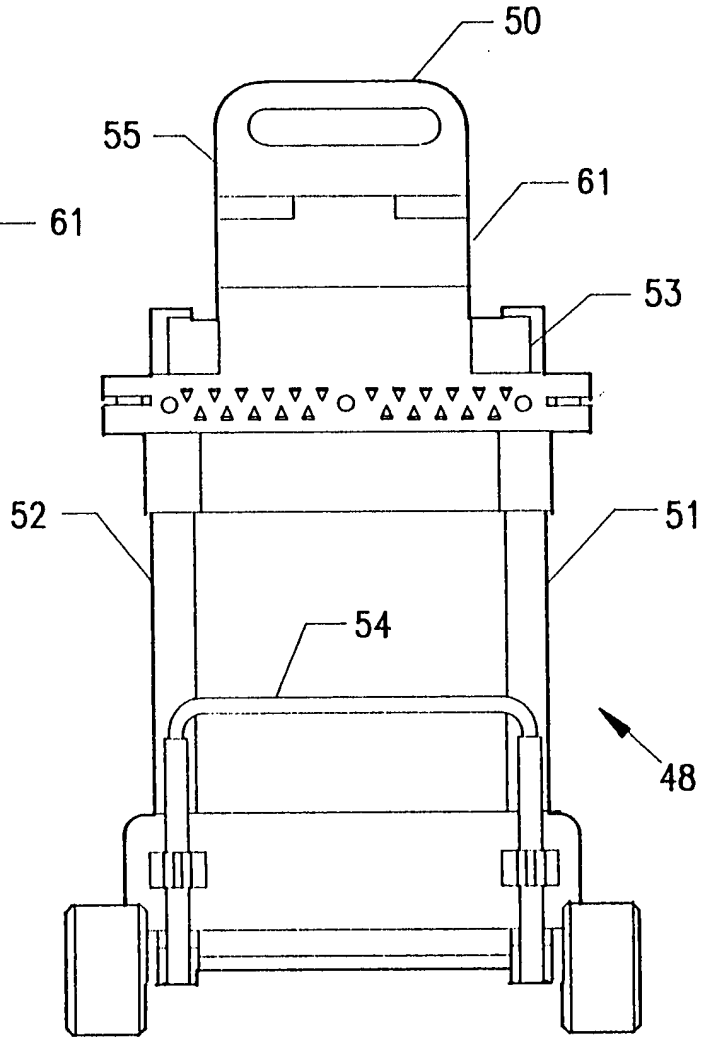


FIG. 8

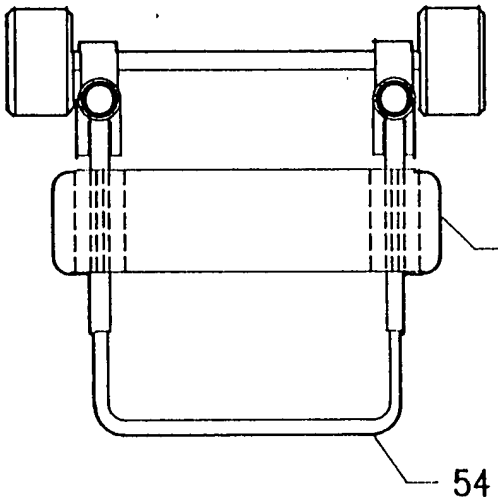
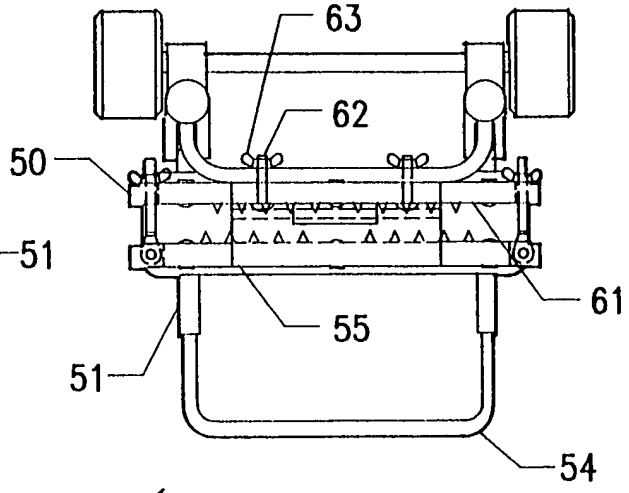


FIG. 13



48

FIG. 10

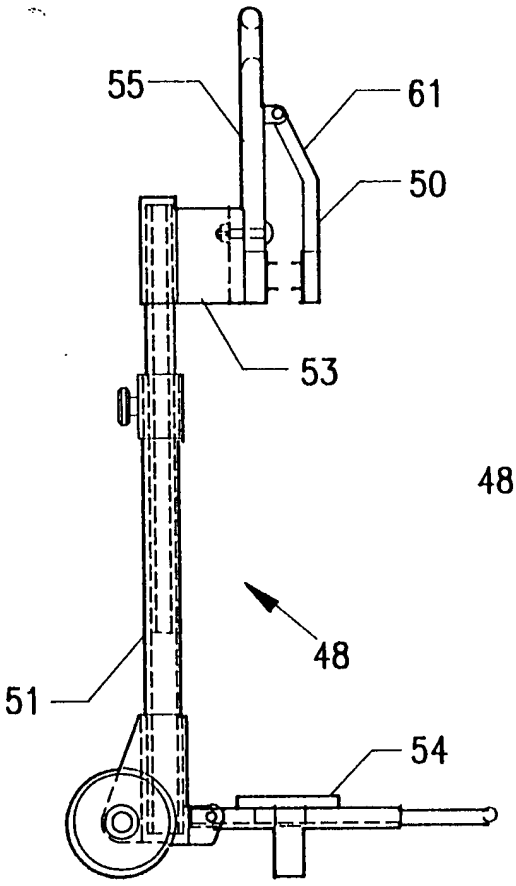


FIG. 12

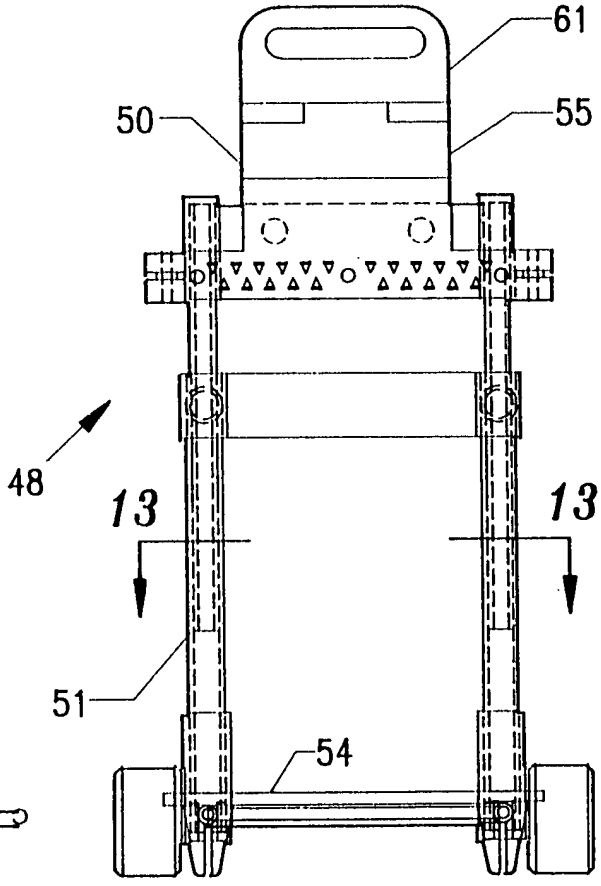


FIG. 11

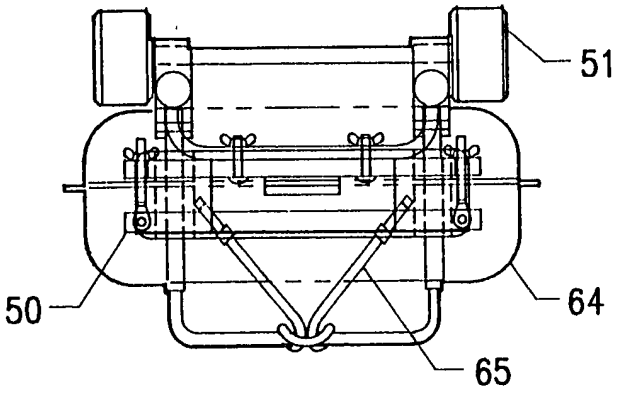


FIG. 15

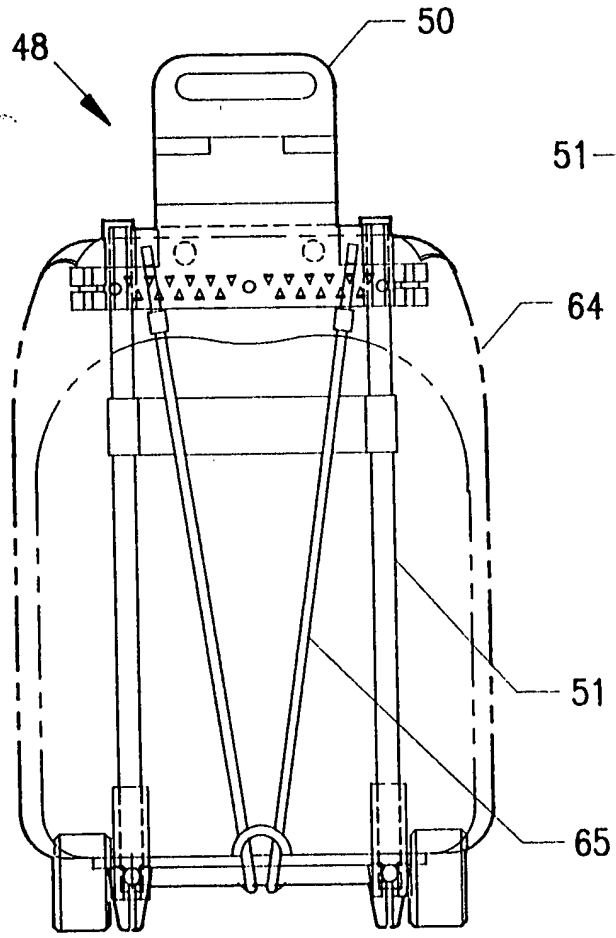


FIG. 16

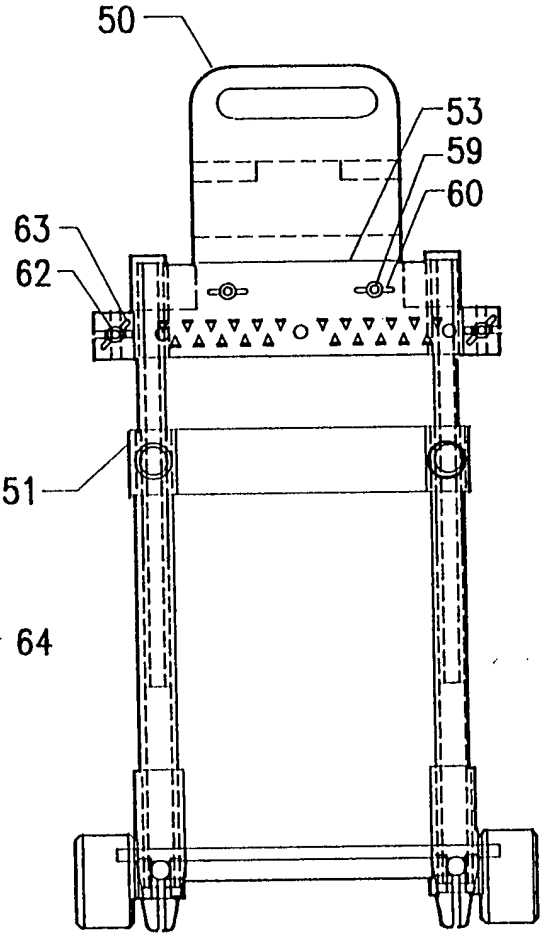


FIG. 14

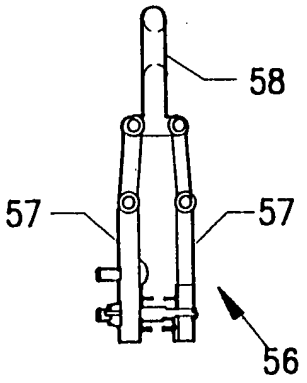


FIG. 19

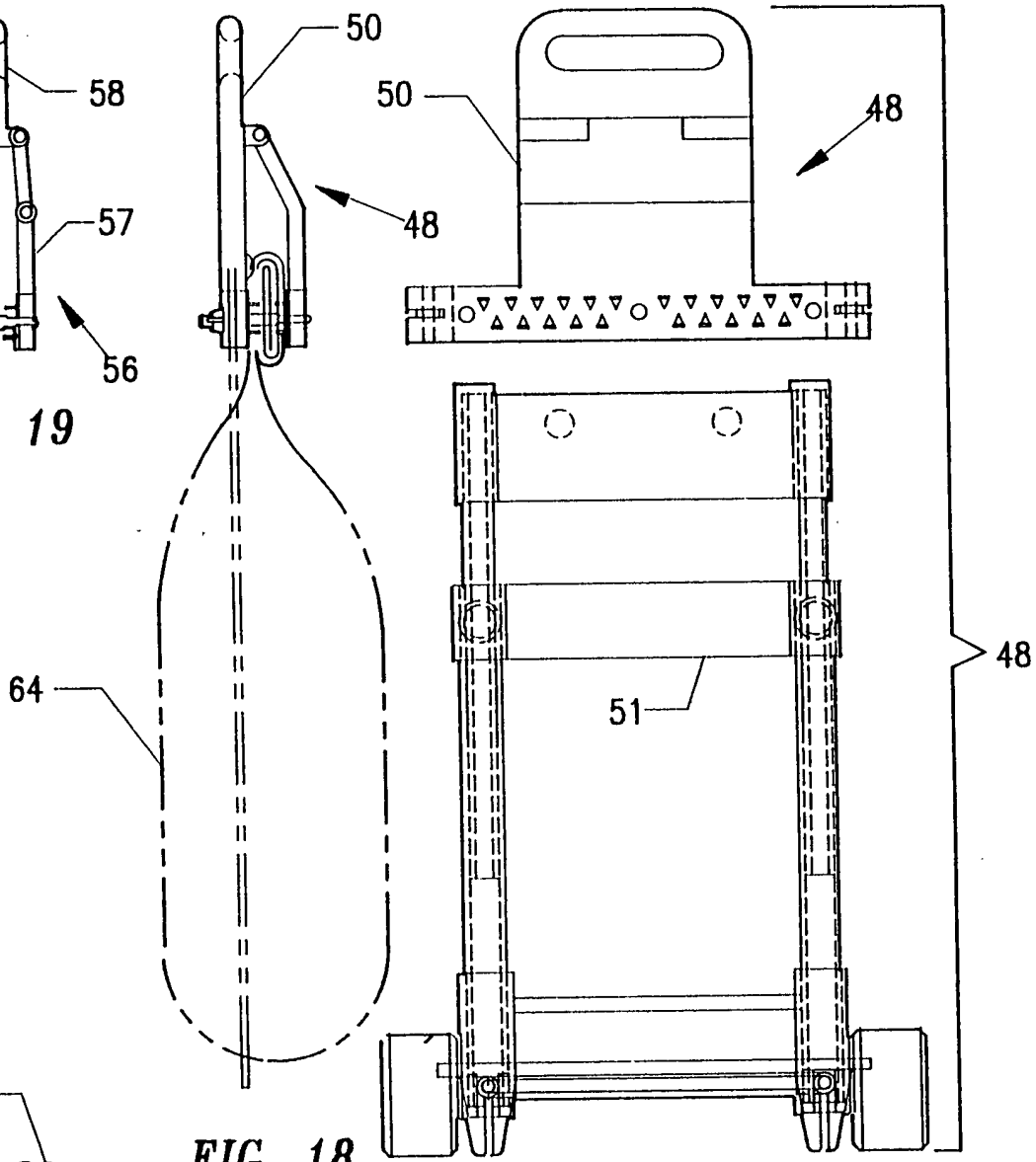


FIG. 18

FIG. 17

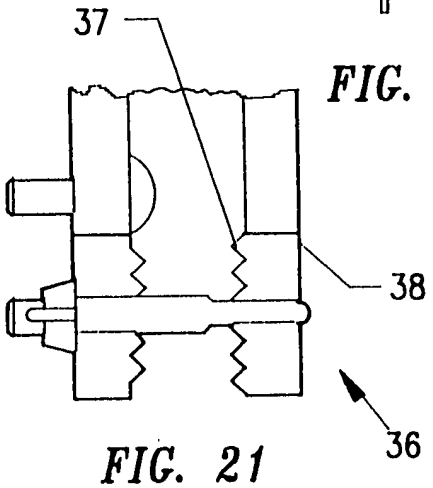


FIG. 21

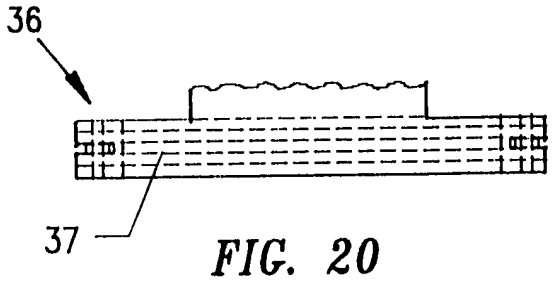


FIG. 20

BAG CARRIER

This invention relates to hand carriers and more particularly to a unique hand carrier for transporting large bags filled with loose and granular materials.

BACKGROUND OF THE INVENTION

Although many loose and granular products such as fruit, vegetables, grains, salt, sand, trash, fertilizer, dog or cat food, potting soil, cement and the like are stored in large bags, little progress has been made in developing devices for carrying large bags, sacks and other deformable containers, filled with loose or granular materials. The common practices of carrying heavy bags by cradling, gripping and resting on shoulders are inefficient and frequently result in spillage, soiling of clothes and/or physical injuries. One of the principal drawbacks with the present procedures is a tendency to induce high stresses on muscles and vertebrae by elevating heavy bags. Moreover, the likelihood of spillage, spoilage and contamination increases when bags are opened and not securely closed.

In spite of the substantial progress and the considerable efforts and large sums expended in developing drugs and surgical procedures for treating muscle and back injuries, one area which has remained completely incapable of resolution, until the present invention, is the avoidance of muscle and back injuries by

improvements in carrying heavy bags. A need exists for simple to use, effective devices for transporting heavy bags and sacks, partially or completely filled with loose or granular materials. This need is particularly urgent with elderly persons who constitute an increasing portion of the population and who must transport heavy bags from store to home or must lift to pour and use the contents of bags. Many women also have difficulty in lifting and transporting bags weighing 10 lbs. or more.

SUMMARY OF THE INVENTION

All of the drawbacks and difficulties encountered with prior practices are completely overcome with the present invention. In order to overcome these drawbacks, a dedicated bag and sack carrier is provided which is effective and easy to use. One benefit of the invention is that heavy bags and sacks need only to be elevated by an amount which is necessary to transport them. Another benefit is that the carrier can be used for sealing previously opened bags and sacks.

In employing the teaching of the present invention, a plurality of alternate constructions can be adopted to achieve the desired results and capabilities. In this disclosure, some alternate constructions are discussed. However, these embodiments are intended as examples and should not be considered as limiting.

In this invention, resides certain features which individually and collectively contribute to its ability to reduce injuries and spillage during the carrying of heavy bags and sacks containing

loose or granular materials. In a first aspect of the invention the carrier is intended to be used in confined areas and for carrying light and moderately heavy bags and sacks. The carrier is comprised of a pair of elongated pivotally connected members for gripping upper portions of bags and sacks and a handle which is attached to the gripping members for carrying the bags and sacks in a suspended manner. At least one of the members has a plurality of small portions which protrude inwardly to grip the bags and sacks. An additional advantage is the ability to utilize the carrier as a secure closing device.

In a second aspect of the invention, the carrier is intended to be used for carrying heavy and/or large bags and sacks. The carrier is used in combination with a 2-wheel cart having an adjustable shelf for supporting the bottom of a bag or sack. The height of the cart is also adjustable such that different height bags can be supported on the shelf with upper bag portions held by the carrier. One feature of this aspect is that the carrier can be detached from the cart and used without the cart and if desired later reattached. Another feature is that the cart can be collapsed for storage, as its frame is adjustable and its shelf is foldable.

Further features and benefits will become apparent by reference to the drawings and ensuing detailed description of a preferred embodiment which discloses the best mode contemplated in carrying out the invention. The exclusive rights which are claimed are set forth in each of the numbered claims following the detailed

description of the preferred embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and further objects, characterizing features, details and advantages thereof will appear more clearly with reference to the diagrammatic drawings illustrating specific embodiments of the invention by way of non-limiting example only.

Fig. 1 is a front view of a bag and sack carrier showing a pair of gripping members in a locked condition.

Fig. 2 is a left side view of Fig. 1.

Fig. 3 is a left side view of a carrier showing the gripping members in an unlocked condition.

Fig. 4 is a cross-sectional view taken on the line 4-4 in Fig. 1.

Fig. 5 is a front view showing the bag carrier with a bag shown in phantom.

Fig. 6 is a right side view of Fig. 5.

Fig. 7 is a plan view of a second embodiment of the present invention shown in a non-operative condition.

Fig. 8 is a front view of the second embodiment in the condition shown in Fig. 7.

Fig. 9 is a right side view of the second embodiment in the condition shown in Fig. 7.

Fig. 10 is a plan view of the second embodiment shown in an alternate condition.

Fig. 11 is a front view of the second embodiment in the condition shown in Fig. 10.

Fig. 12 is a right side view of the second embodiment in the condition shown in Fig. 10.

Fig. 13 is a cross-sectional view taken on the line 13-13 in Fig. 11.

Fig. 14 is a rear view of the second embodiment in the condition shown in Fig. 10.

Fig. 15 is a plan view of the second embodiment with a bag shown in phantom.

Fig. 16 is a front view of the second embodiment with the bag shown in phantom.

Fig. 17 is an exploded view of the second embodiment.

Fig. 18 is a right side view of a third embodiment with a bag shown in phantom.

Fig. 19 is a right side view of a fourth embodiment.

Fig. 20 is a partial front view of a fifth embodiment.

Fig. 21 is an enlarged right side view of the fifth embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings wherein like numerals designate like and corresponding parts throughout the several views, a bag carrier 30, is shown in Figs. 1 through 6, inclusive, according to the present invention.

One characteristic feature of the present invention is that

portions of bags and sacks are clamped between jaws 32 having gripping surfaces 31. By way of example, in the embodiment of Figs. 1 through 6, the gripping surfaces 31 of a pair of jaws 32 are surfaces having small protuberances, namely triangular tabs 33 which project inwardly between rectangular jaws 32. The gripping surfaces 31 generate high forces for preventing bags and sacks from being inadvertently separated from the carrier 30.

The rectangular jaws 32 are formed by riveting thin metal strips 34 to wood or plastic materials. The triangular tabs 33 are formed in stamping dies by shearing and bending triangular portions of the metal strips 34. Similar gripping surfaces may be formed by molding small protuberances by the usual manner in plastic jaws (not shown).

By way of further example, an alternate form of gripping surface 36 which is contemplated is shown in Figs. 20 and 21 wherein a plurality of triangular ridges 37 extend along the length of one of the jaws 38.

The jaws 32 are attached to a pair of pivotally connected wire arms 39, 40. As shown in Figs. 1 and 2, end portions of the arms 39, 40 extend through apertures in the jaws 32 and threadably engage nuts 41 which retain the arms 39, 40 in the jaws 32. The arms 39, 40 are comprised of spaced apart vertical side portions 42 and connecting top portions 43. A handle 44 which is pivotally attached to one of the arms 39 serves as a means for carrying a bag and a means for tightly clamping the jaws 32 on the bag.

The handle 44 is comprised of a wire portion 45 having end

portions pivotally mounted on one 39 arm and a cylindrical wood or plastic hand portion 46 mounted on the wire portion 45. The clamping and releasing of the jaws 32 is best understood by reference to Figs. 2 and 3. When the jaws 32 are clamped as shown in Fig. 2, the wire portion 45 of the handle 44 constrains the arms 39, 40 from separating from each other. With reference to Fig. 3, the jaws 32 are released by rotating the handle 44 in the direction "A", to allow the jaws 32 to separate from each other in the directions "B".

The manner of using the carrier 30 is shown in Figs. 5 and 6 wherein the carrier 30 is clamped to a bag 47 drawn in phantom. After the jaws 32 are clamped on an upper portion of the bag 47, the bag 47 can be lifted or dragged along a surface with the handle 44. In this way, injuries are reduced since the bag 47 need only be lifted by a small amount or dragged without lifting along a surface.

Referring now to Figs. 7 through 18, inclusive, a second aspect 48 of the invention is shown wherein a carrier 50, according to the invention, is combined with a 2-wheel cart 51. The 2-wheel cart 51 is comprised of a tubular frame 52, an upper bracket 53 for attaching the carrier 50 and a lower shelf 54 for supporting a lower end of a bag or sack. The height of the 2-wheel cart 51 and area of the shelf 54 are adjustable for storage and to accommodate differences in sizes of bags or sacks.

The shelf 54 is telescopic and foldable from a vertical stored portion to a horizontal load supporting position. In this way, the

cart 51 can be reduced in size, as shown in Figs. 8 and 9, for storage in vehicle luggage compartments and used for transporting heavy bags and sacks to and from vehicles.

One of the carrier's jaws 55 serves as a handle and a bracket for attaching the carrier 50 to the cart 51. In Fig. 19, an alternate embodiment 56 is shown wherein a pair of jaws 57 is pivotally connected to a handle 58. With reference to Figs. 7 and 9, the carrier 50 is attached to the cart 51 with a pair of bolts 59 and thumb nuts 60. As shown in 15, when the carrier 50 is detached from the cart 51, it can be independently used to transport bags.

The second jaw 61 is pivotally connected to the first mentioned jaw 55. Referring again to Figs. 7 and 9, an alternate means for clamping jaws 55, 61 is disclosed wherein the jaws 55, 61 are clamped with eye bolts 62 and thumb screws 63.

The manner of using this embodiment 48 is illustrated in Figs. 14 and 15 wherein the carrier 50 is clamped to an upper portion of a rather large bag 64 shown in phantom and the lower portion of the bag 64 is supported on the lower shelf 54. Additional retention of the bag is provided by an elastic bungee cord 65 which is attached to the lower shelf 54 and one of the clamps 61.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained. Since certain changes may be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or

shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A carrier for transporting a bag or sack comprised of: a pair of elongated jaws, at least one of said jaws having a gripping surface for retaining a bag or sack; a pair of pivotally connected arms attached to said jaws; a handle attached to at least one of said jaws; and a means for clamping said jaws to said bag or sack.

2. The carrier as recited in claim 1 wherein said gripping surface of said jaw is comprised of a plurality of small outward extending portions for retaining said bag or sack.

3. A carrier for transporting a bag or sack comprised of: a pair of elongated jaws; a pair of wire arms, each of said arms having a pivotally connected upper portion and pair of lower end portions attached to one of said jaws; a thin metal strip attached to at least one of said jaws, said metal strip having a plurality of outward extending tabs for forming a gripping surface; a means for clamping said jaws to a bag or sack; and a handle attached to one of said arms.

4. The carrier as recited in claim 3 wherein said outward extending tabs are triangular.

5. In combination with a cart, a carrier mounted on an upper

portion of said cart, said carrier having a pair of elongated jaws, and a means for clamping said carrier to an upper portion of said bag or sack, and a handle attached to at least one of said jaws.

6. The combination set forth in claim 5 wherein said cart is a 2-wheel cart.

7. The combination set forth in claim 5 wherein said cart has a lower shelf for supporting said bag or sack,

8. The combination set forth in claim 7 wherein said shelf is selectively foldable from a vertical stored position to a horizontal load supporting position.

9. The combination set forth in claim 7 wherein said shelf has an area which is adjustable.

10. The combination set forth in claim 5 wherein said carrier is detachable from said 2-wheel cart.

11. The combination set forth in claim 5 wherein said handle is pivotally connected to both of said jaws.

12. The combination set forth in claim 5 wherein said cart has a height which is adjustable.

13. The combination set forth in claim 5 wherein said means for clamping said carrier to said bag or sack comprises a pair of bolts, each having one end portion pivotally attached to an end portion of one of said jaws and a thumb nut for engaging an opposite end portion of another of said jaws.

14. In combination, a 2-wheel cart, said cart having a tubular frame which is vertically adjustable, and a lower shelf portion attached to said frame which is selectably foldable from a vertical stored position to a horizontal load supporting position, and a carrier detachably mounted on an upper portion of said cart for transporting a bag or sack, said carrier having a pair of elongated jaws, each of said jaws having a gripping surface for retaining said upper portion of a bag or sack, a means for clamping said carrier to an upper portion of said bag or sack, and a handle attached to one of said jaws.

15. A method for transporting a bag filled with loose or granular materials comprised of the steps of gripping an upper portion of said bag between a pair of jaws of a clamp, said clamp having a handle attached to at least one of said jaws; grasping said handle with a hand; and transporting said bag with said hand.

16. The method for transporting a bag filled with loose or granular materials according to claim 15 wherein said bag is dragged with said hand along a surface.

17. The method for transporting a bag filled with loose or granular materials according to claim 15 further comprising the step of elevating said bag after said handle is grasped with said hand.

18. The method for transporting a bag filled with loose or granular materials according to claim 15 further comprising the step of supporting said bag on a wheeled cart before said step of gripping an upper portion of said bag between a pair of jaws.

19. The method for transporting a bag filled with loose or granular materials according to claim 18 further comprising the step of attaching a bungee cord to said cart for retaining said bag.

ABSTRACT OF THE DISCLOSURE

A carrier for transporting a bag or a sack containing loose or granular materials. The carrier is comprised of a pair of jaws having gripping surfaces for retaining an upper portion of a bag or sack and a handle for carrying the bag or sack in a slightly elevated position or by dragging on a surface. In a first aspect of the invention, the gripping surfaces are formed by shearing and bending a plurality of triangular tabs in metal strips which are applied to the jaws. In a second aspect of the invention, the carrier is attached to a 2-wheel cart in a manner which allows the carrier to used in combination with the cart or detached and used independently.

Office Action Summary	Application No. 09/207,634	Applicant(s) Berke et al.
	Examiner Bridget Avery	Group Art Unit 3618

☒ Responsive to communication(s) filed on *Mar 29, 2001*.

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *5-14 and 20-28* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) *11* is/are allowed.

☒ Claim(s) *5-10, 12-14, and 20-28* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. In response to applicant's request for reconsideration and the submission of the English translation of the Mascio (Italy 574172) reference, the finality of the previous office action has been withdrawn. An action on the merits of claims 5-14 and 20-28 follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 5-8, 10, 20, 21 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj (US Patent 5,697,624) in view of White (US Patent 5,621,950).

Faraj discloses a cart for transporting grocery bags and cartons. The cart including a support member (12), a handle (24), a plurality of hooks (26) for receiving a handle, and a storable lower shelf/platform (30). With respect to claims 6 and 24-28 and applicant's claim of two wheels, see column 2, lines 31-33.

White discloses a detachable carrier having a pair of elongated jaws (12, 14), a means (16) for clamping the jaws (12, 14) to and releasing the jaws (12, 14) from an upper portion of a bag

or sack, a handle (32), having a closed loop (36), attached to at least one of the jaws (14), and, a gripping surface (20, 24) including a plurality of small triangular, outward extending portions (38) for retaining and supporting a closed bag or sack.

Based on the teachings of White, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to combine the bag carrier with the cart of Faraj to facilitate ease in transporting bags without handles.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and White ('950) and further in view of Arias et al. (US Patent 4,261,447).

Faraj and White disclose the features described above.

Faraj and White fail to disclose an adjustable shelf.

Asias et al. discloses a suitcase cart having a base legs (40) with telescoping tubes (54).

Based on the teachings of Asias et al., it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and White to include an adjustable shelf with telescoping tubes to support items of various sizes.

5. Claim 12 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and White ('950) and further in view of Smith (US Patent 4,044,784).

Faraj and White disclose the features described above.

Faraj and White fail to disclose a cart having an adjustable height.

Smith discloses an adjustable height walking aid cane.

Based on the teachings of Smith, it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and White to include a support body where the height is adjustable using telescoping tubes to accommodate users of varying heights.

6. Claim 14 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and White ('950) in view of Smith (US Patent 4,044,784).

Faraj discloses a cart for transporting grocery bags and cartons. The cart including a support member (12), a handle (24), a plurality of hooks (26) for receiving a handle, and a storable lower shelf/platform (30).

White discloses a detachable carrier having a pair of elongated jaws (12, 14), a means (16) for clamping the jaws (12, 14) to and releasing the jaws (12, 14) from an upper portion of a bag or sack, a handle (32), having a closed loop (36), attached to at least one of the jaws (14), and, a gripping surface (20, 24) including a plurality of small triangular, outward extending portions (38) for retaining and supporting a closed bag or sack.

Smith discloses an adjustable height walking aid cane.

Based on the teachings of White, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to combine the bag carrier with the cart of Faraj to facilitate ease in transporting bags without handles.

Based on the teachings of Smith, it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and White to include a support body where the height is adjustable using telescoping tubes to accommodate users of varying heights.

7. Claims 5-8, 10, 13 and 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) in view of Brown (US Patent 5,301,393).

Faraj discloses a cart for transporting grocery bags and cartons. The cart including a support member (12), a handle (24), a plurality of hooks (26) for receiving a handle, and a storable lower shelf/platform (30). With respect to claims 6 and 24-28 and applicant's claim of two wheels, see column 2, lines 31-33.

Brown discloses a detachable carrier having a pair of elongated jaws (20, 18), a means (24, 26) for clamping the jaws (20, 18) to and releasing the jaws (20, 18) from an upper portion of a bag or sack, an integral handle portion (12), having a closed loop (14), attached to at least one of the jaws (18), outwardly extending bosses (28), which bosses (28) are received or accommodated in through holes (30), and, a gripping surface (18) including a plurality of small outward extending portions (40) for retaining and supporting a closed bag or sack. With respect to claim 22, it is noted that Brown's clip is constructed of all metal (see column 1, lines 66) therefore the metal strip claimed by applicant is shown as an integral feature with the jaws of Brown. With respect to claim 23, see column 5, lines 51-54. Note, the bosses and holes, taught by Brown, are functionally equivalent to the applicant's claimed bolt and thumb nut. The

selection of any of theses known equivalents to attach elements would be within the level of ordinary skill in the art.

Based on the teachings of Brown, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to combine the bag carrier with the cart of Faraj to facilitate ease in transporting bags without handles.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and Brown ('393) and further in view of Arias et al. (US Patent 4,261,447).

Faraj and Brown disclose the features described above.

Faraj and Brown fail to disclose an adjustable shelf.

Asias et al. discloses a suitcase cart having a base legs (40) with telescoping tubes (54).

Based on the teachings of Asias et al., it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and Brown to include an adjustable shelf with telescoping tubes to support items of various sizes.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and Brown ('393) and further in view of Smith (US Patent 4,044,784).

Faraj and Brown disclose the features described above.

Faraj and Brown fail to disclose a cart having an adjustable height.

Smith discloses an adjustable height walking aid cane.

Based on the teachings of Smith, it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and Brown to include a support body where the height is adjustable using telescoping tubes to accommodate users of various heights.

10. Claim 14 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraj ('624) and White ('950) in view of Smith (US Patent 4,044,784).

Faraj discloses a cart for transporting grocery bags and cartons. The cart including a support member (12), a handle (24), a plurality of hooks (26) for receiving a handle, and a storable lower shelf/platform (30). With respect to claims 6 and 24-28 and applicant's claim of two wheels, see column 2, lines 31-33.

Brown discloses a detachable carrier having a pair of elongated jaws (20, 18), a means (24, 26) for clamping the jaws (20, 18) to and releasing the jaws (20, 18) from an upper portion of a bag or sack, an integral handle portion (12), having a closed loop (14), attached to at least one of the jaws (18), outwardly extending bosses (28), which bosses (28) are received or accommodated in through holes (30), and, a gripping surface (18) including a plurality of small outward extending portions (40) for retaining and supporting a closed bag or sack.

Smith discloses an adjustable height walking aid cane.

Based on the teachings of Brown, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to combine the bag carrier with the cart of Faraj to facilitate ease in transporting bags without handles.

Based on the teachings of Smith, it would have been obvious to one of ordinary skill in the art to modify the combination of Faraj and White to include a support body where the height is adjustable using telescoping tubes to accommodate users of various heights.

Allowable Subject Matter

11. Claim 11 is allowed.

Response to Arguments

12. Applicant's arguments with respect to claims 5-14 and 20-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Comeaux shows a garbage bag support and storage device.

Tseng shows a paper holder.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number (703) 308-2086.

Avery

April 12, 2001

4/13/01

ANNE MARIE BOEHLER
Primary Examiner

FORM PTO-892	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	SERIAL NO.	GROUP ART UNIT	ATTACHMENT TO PAPER NO.	
	NOTICE OF REFERENCES CITED	09/207,634	3618		9
		APPLICANT(S) Berke et al.			

U.S. PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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	L						
	M						
	N						
	O						
	P						
	Q						

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	R	
	S	
	T	
	U	

EXAMINER	DATE	
Bridget Avery	April 12, 2001	Form892ccs2106b

* A copy of this reference is not being furnished with this office action.
(See Manual of Patent Examining Procedure, section 707.05(a).)

Advisory Action

Application No.	Applicant(s)
09/207,634	Berke et al.
Examiner	**Art Unit**
Bridget Avery	3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED *Jul 19, 2001* FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid the abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

THE PERIOD FOR REPLY [check only a) or b)]

a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.

b) ☐ In view of the early submission of the proposed reply (within two months as set forth in MPEP § 706.07 (f)), the period for reply expires on the mailing date of this Advisory Action, OR continues to run from the mailing date of the final rejection, whichever is later. In no event, however, will the statutory period for the reply expire later than SIX MONTHS from the mailing date of the final rejection.

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will be entered upon the timely submission of a Notice of Appeal and Appeal Brief with requisite fees.

3. ☐ The proposed amendment(s) will not be entered because:

   (a) ☐ they raise new issues that would require further consideration and/or search. (See NOTE below);

   (b) ☐ they raise the issue of new matter. (See NOTE below);

   (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d) ☐ they present additional claims without cancelling a corresponding number of finally rejected claims.

   NOTE: _____

4. ☐ Applicant's reply has overcome the following rejection(s):

5. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment cancelling the non-allowable claim(s).

6. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because:
The 103 rejections of claims 5-10, 12-14 and 20-28 is deemed proper. The references relied upon for rejection, when combined, reasonably disclose the features claimed by applicant in the rejected claims.

7. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

8. ☒ For purposes of Appeal, the status of the claim(s) is as follows (see attached written explanation, if any):

   Claim(s) allowed: _____

   Claim(s) objected to: *11*

   Claim(s) rejected: *5-10, 12-14, and 20-28*

9. ☐ The proposed drawing correction filed on _____ a) ☐ has b) ☐ has not been approved by the Examiner.

10. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.

11. ☐ Other:

BRIDGET AVERY
PATENT EXAMINER 7/25/01

US005951037A

United States Patent [19]

Hsieh et al.

[11] Patent Number: 5,951,037

[45] Date of Patent: Sep. 14, 1999

[54] **LUGGAGE CART**

[76] Inventors: **Hung-Ching Hsieh**; **Yung-Shun Hsieh**, both of No. 15, Lane 493, Sec 2, Yuan-Chi Rd., Yuan-Lin, Chang-Hua Hsien, Taiwan

[21] Appl. No.: **08/956,625**

[22] Filed: **Aug. 7, 1997**

[51] **Int. Cl.**[6] **B62B 1/00**

[52] **U.S. Cl.** **280/655**; 280/47.29

[58] **Field of Search** 280/638, 639, 280/652, 655, 655.1, 47.18, 47.24, 47.27, 47.28, 47.29

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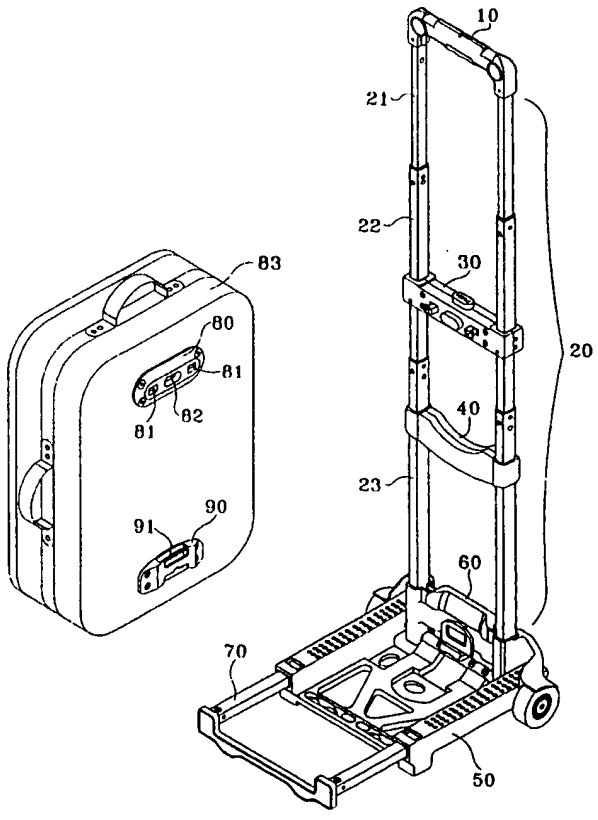
Primary Examiner—Richard Camby
Assistant Examiner—Jeff Restifo
Attorney, Agent, or Firm—Erik M. Arnhem

[57] **ABSTRACT**

A luggage cart which mainly includes a handle assembly, a vertical telescopic frame assembly, a movable upper crossbar assembly, a fixed crossbar, a luggage support, a foot-control assembly, a horizontal telescopic frame assembly, and an upper and a lower fixing members for mounting onto a back side of a trunk. The handle assembly has a long pull rod provided therein for controlling the sliding of pipes of the vertical telescopic frame assembly. The movable upper crossbar assembly may be adjusted in height to associate with the upper fixing member and the foot-control assembly may be associated with said lower fixing member. Whereby when the trunk is loaded on the luggage support and the horizontal telescopic frame assembly with the upper and the lower fixing members respectively associated with the upper crossbar assembly and the foot-control assembly, the trunk can be carried with the cart in a laborsaving manner. When the luggage cart is not in use, it can be folded to a small volume for convenient storage.

10 Claims, 9 Drawing Sheets



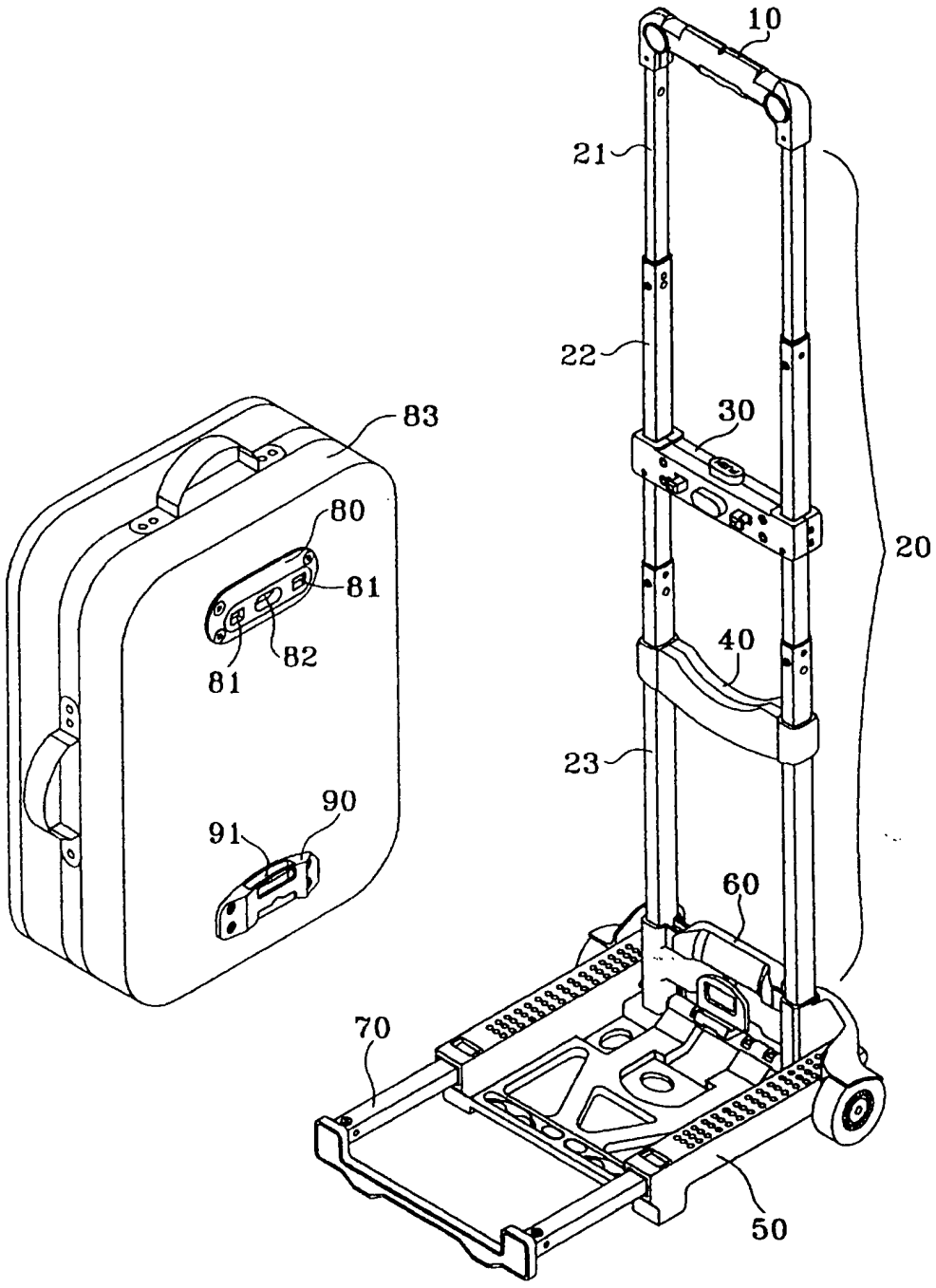
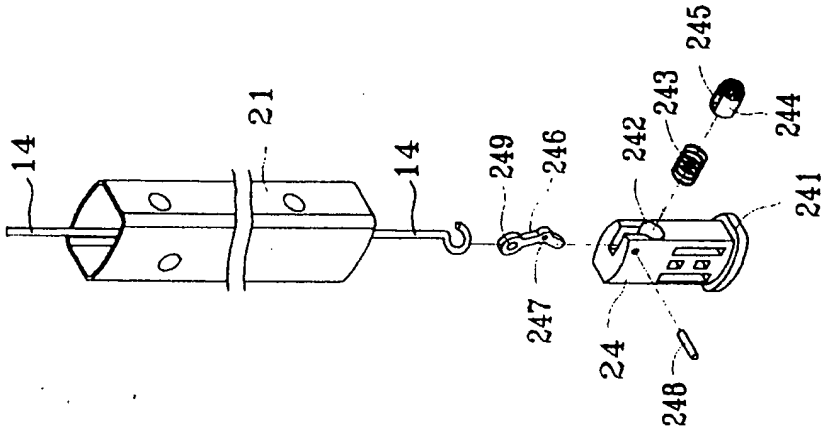


FIG.1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246
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243
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247
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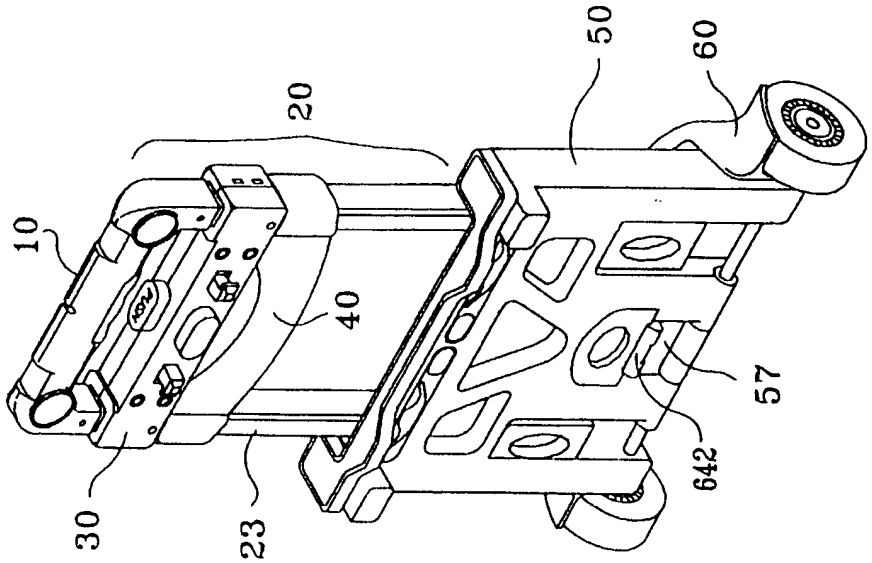
248

FIG.5


50
60
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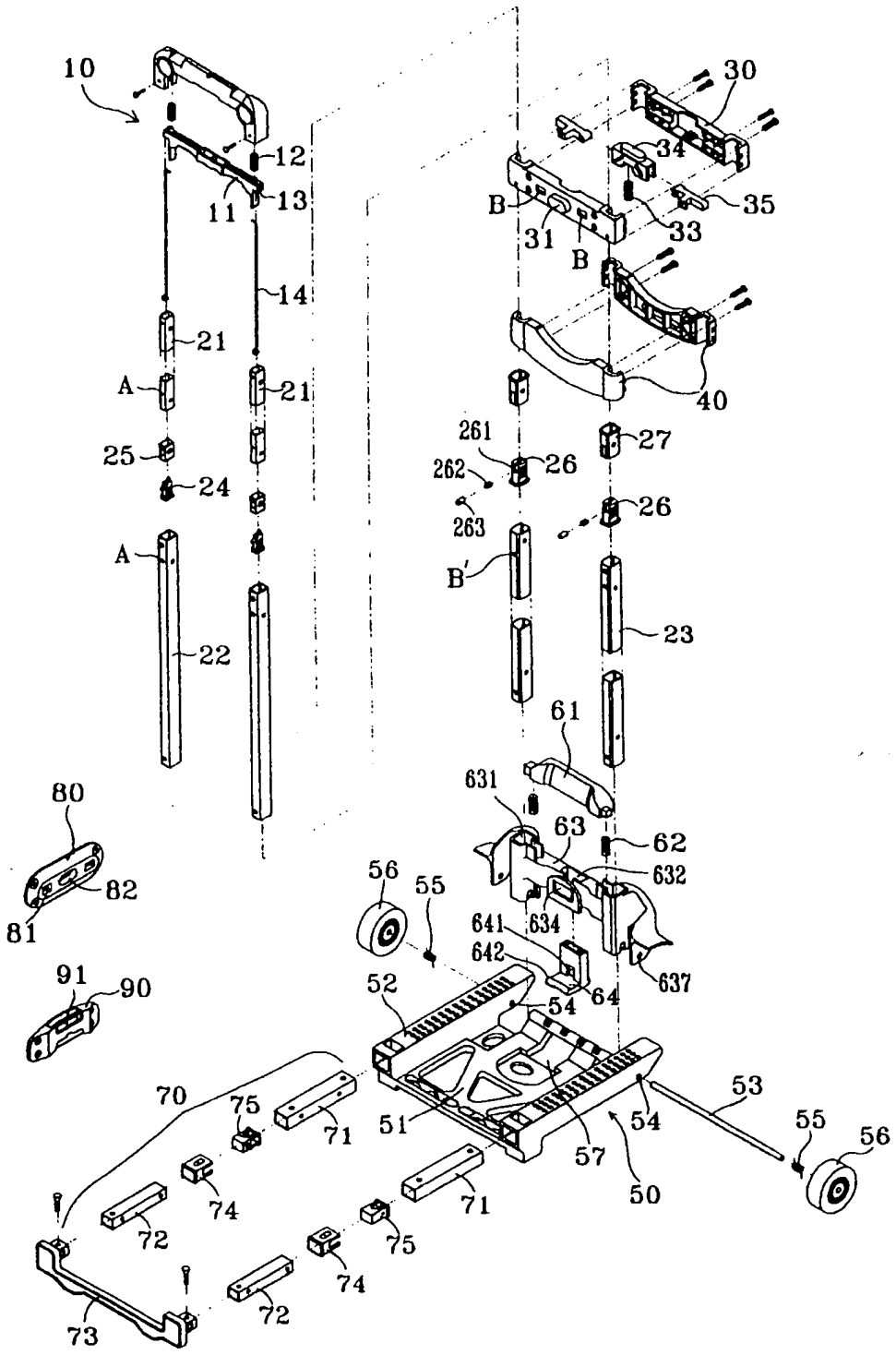
10
40
57
642
30
23

FIG.2


10
12
11
13
14
21
A
21
25
24
A
22
30
34
35
B
31
33
B
40
261
27
262
26
263
26
B'
23
61
631
63
62
632
56
55
641
634
642
64
637
52
54
80
82
81
91
90
70
75
71
51
57
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53
55
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74
72
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72
73

FIG.3

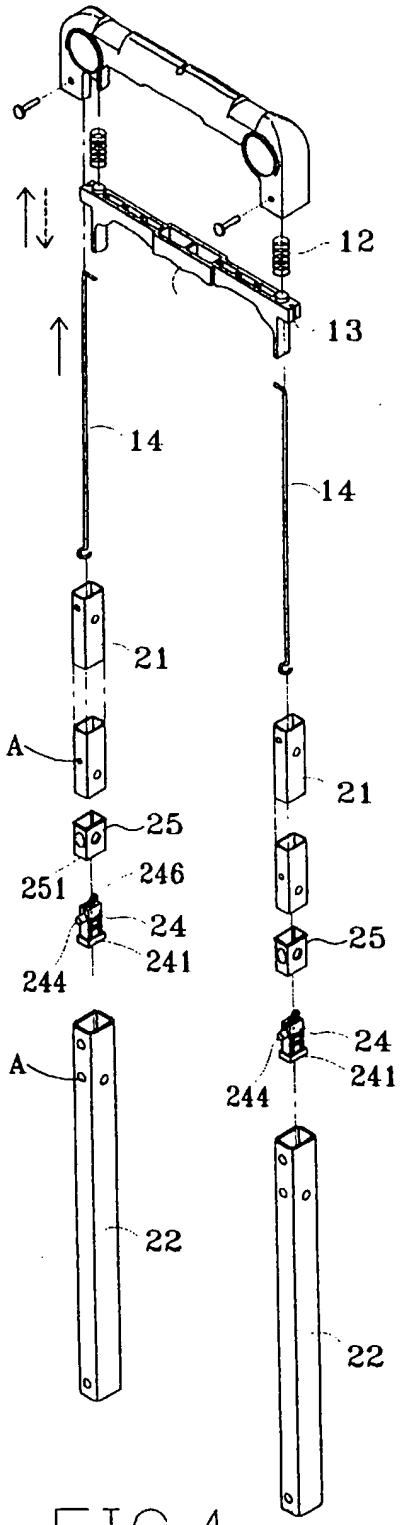


FIG.4

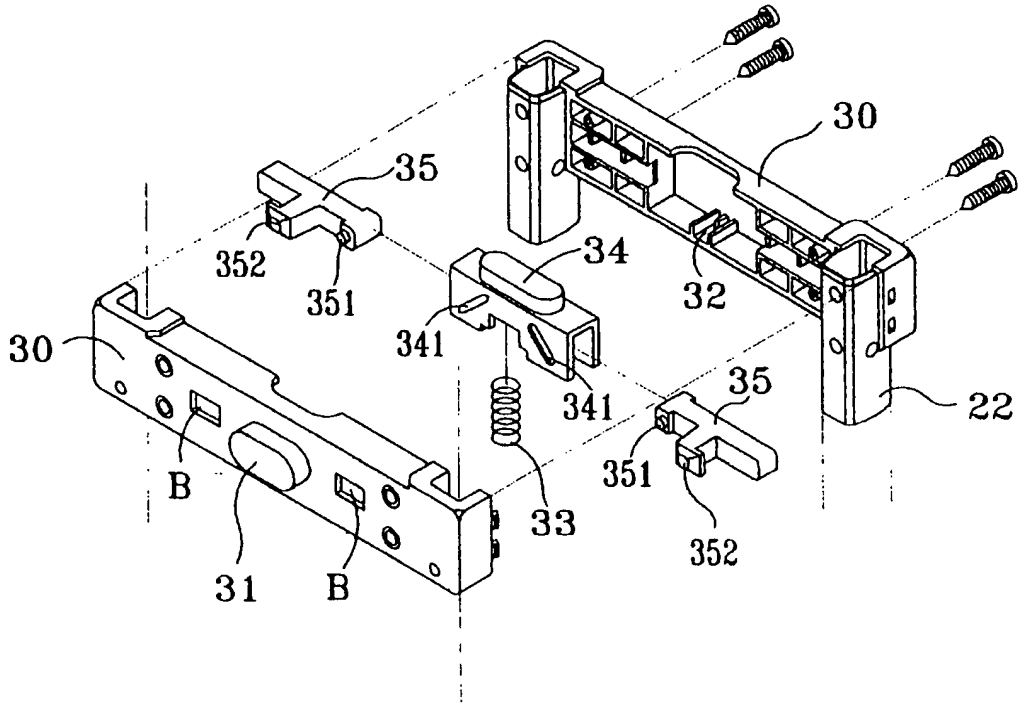
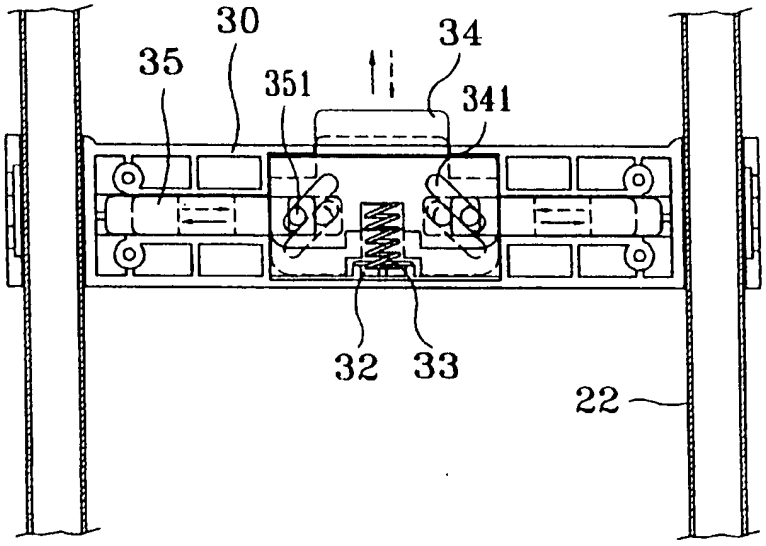

30
35
352
351
34
341
32
30
341
35
22
351
B
33
352
31
B

FIG.6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351
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33
22

FIG.7

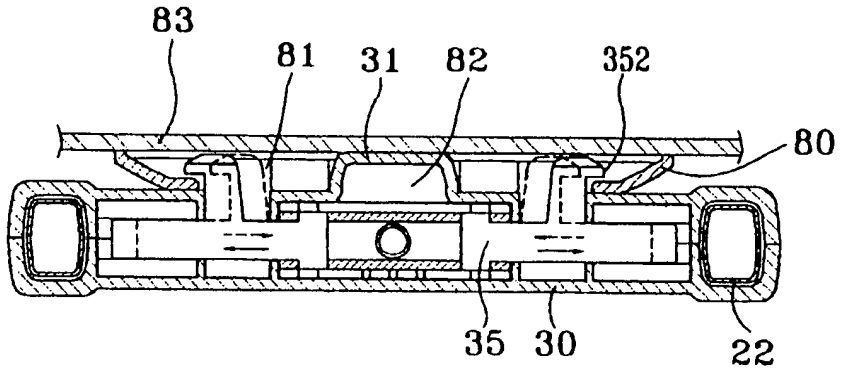
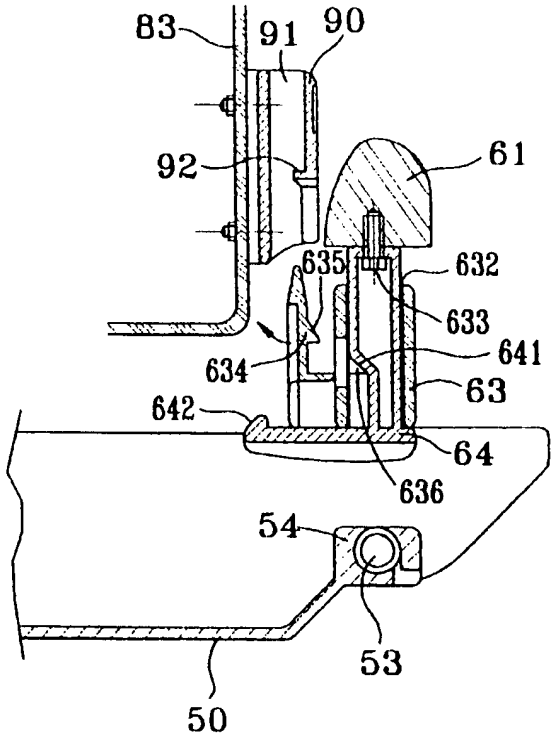

83
81
31
82
352
80
35
30
22

FIG.8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92
61
635
632
633
641
634
63
642
64
636
54
53
50

FIG.9

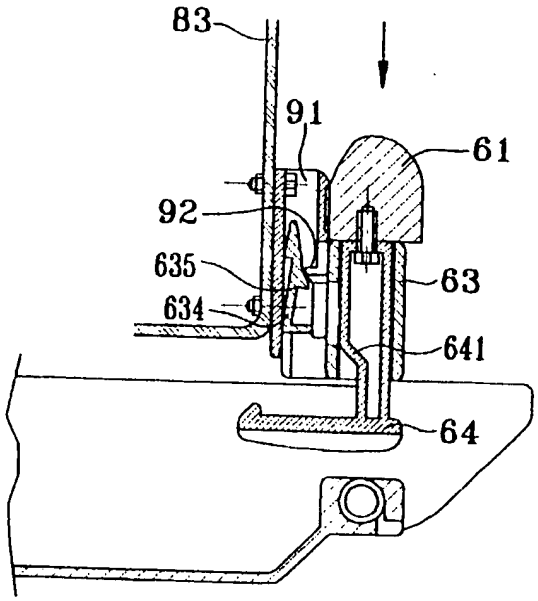

FIG.10

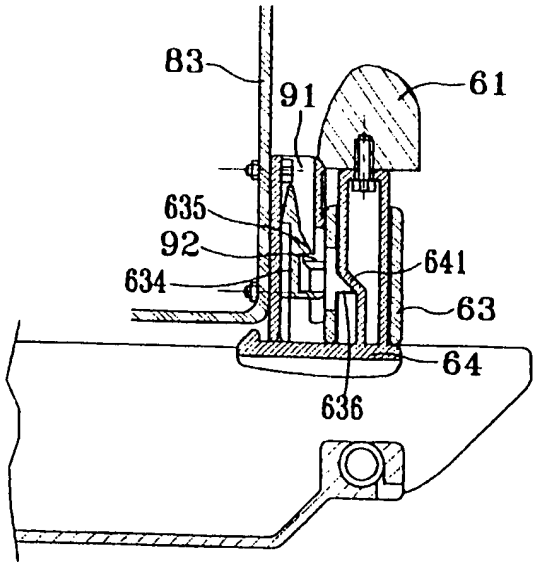

FIG.11

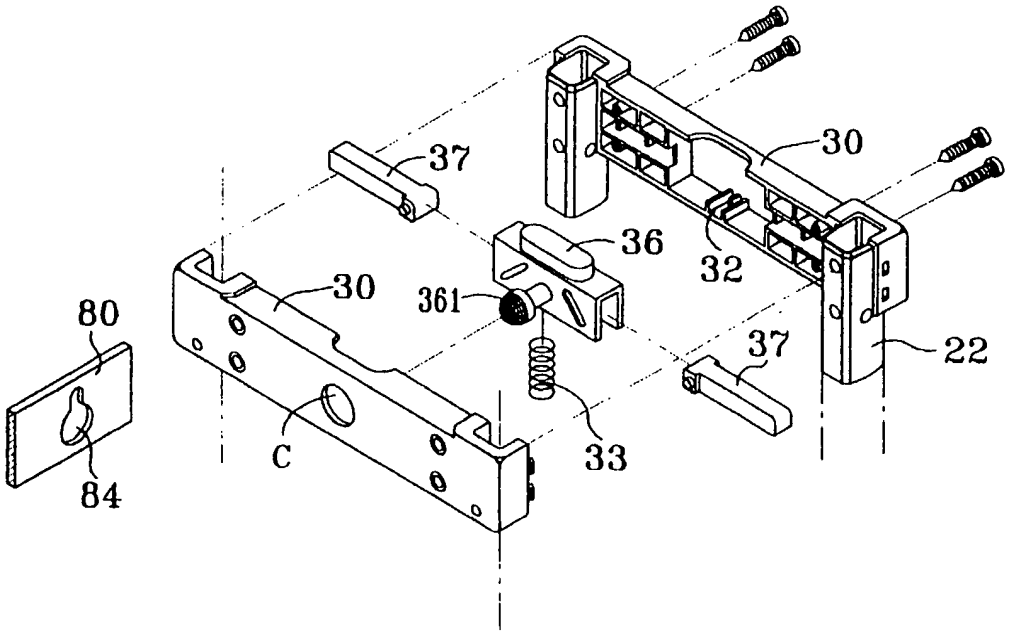

FIG.12

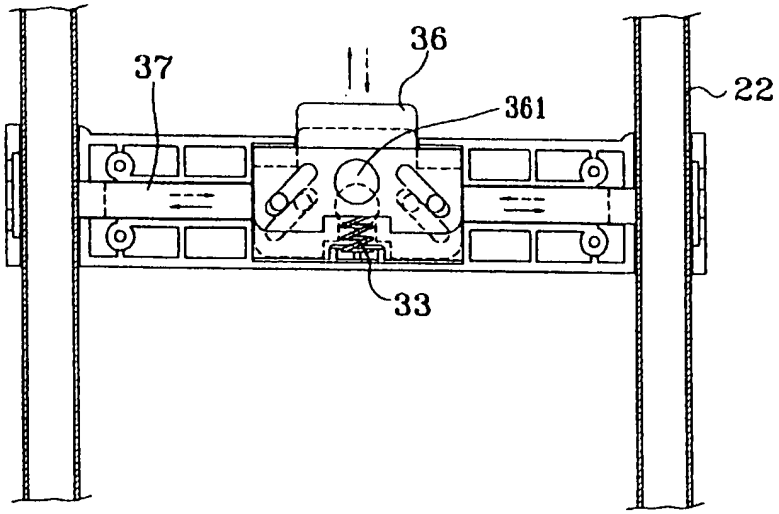

FIG.13

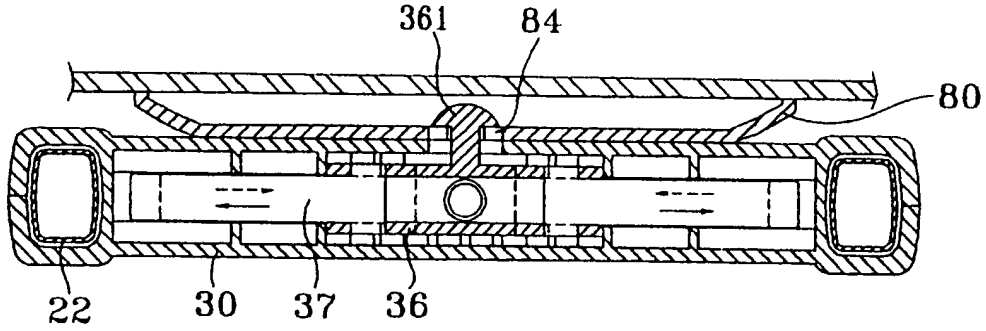

FIG.14

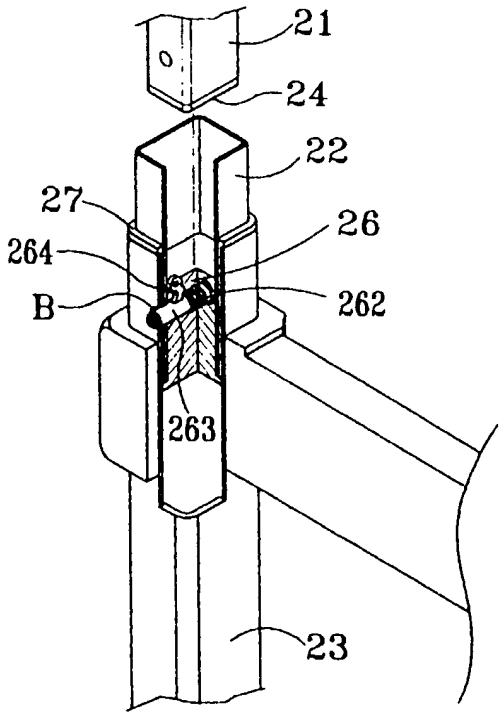

FIG.15

LUGGAGE CART

BACKGROUND OF THE INVENTION

A traveller uses trunks, suitcases, or different bags to load his or her clothing and other personal articles. These trunks, suitcases or bags shall become very heavy when they are fully loaded and are therefore, not easy to carry with hands, particularly during a long-distance travel. These heavy luggages become a burden of the traveller and largely decrease the pleasure of travel.

It is therefore tried by the inventor to develop a luggage cart which can be conveniently used to carry heavy luggages effortlessly and can be folded to a minimum volume for storage when it is not in use.

SUMMARY OF THE INVENTION

The luggage cart according to the present invention mainly includes a handle assembly, a vertical telescopic frame assembly, a movable upper crossbar assembly, a fixed crossbar, a luggage support, a foot-control assembly, a horizontal telescopic frame assembly, and an upper and a lower fixing members for mounting onto a back side of a trunk. The handle assembly has a long pull rod provided therein for controlling the sliding of pipes of the vertical telescopic frame assembly. The movable upper crossbar assembly may be adjusted in height to associate with the upper fixing member and the foot-control assembly may be associated with said lower fixing member. Whereby when the trunk is loaded on the luggage support and the horizontal telescopic frame assembly with the upper and the lower fixing members respectively associated with the upper crossbar assembly and the foot-control assembly, the trunk can be carried with the cart in a laborsaving manner. When the luggage cart is not in use, it can be folded to a small volume for convenient storage.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective showing a luggage cart according to the present invention in a fully unfolded state and a trunk having the fixing members of the present invention attached thereto;

FIG. **2** is a perspective showing the luggage cart of the present invention in a fully folded state;

FIG. **3** is an exploded perspective of the luggage cart and the fixing members of the present invention;

FIG. **4** is an enlarged exploded perspective of the handle assembly and the inner and the middle pipes of the vertical telescopic frame assembly of the present invention;

FIG. **5** is a further enlarged exploded perspective of the first retaining member of the vertical telescopic frame assembly of the present invention;

FIG. **6** is an exploded perspective of the upper crossbar of the present invention;

FIG. **7** illustrates the manner in which the upper crossbar of the present invention is operated;

FIG. **8** illustrates the manner in which the upper crossbar and the upper fixing member of the present invention are associated with one another;

FIGS. **9**, **10** and **11** illustrate the manner in which the lower fixing member and the foot-control assembly of the present invention are associated with one another;

FIG. **12** is an exploded perspective of a second embodiment of the upper crossbar and the upper fixing member;

FIG. **13** illustrates the manner in which the second embodiment of the upper crossbar shown in FIG. **12** is operated;

FIG. **14** illustrates the manner in which the second embodiment of the upper crossbar and the upper fixing member shown in FIG. **12** are associated with one another; and

FIG. **15** is an enlarged, fragmentary perspective showing the second retaining member associated with the outer pipe of the vertical telescopic frame assembly of the present invention, wherein a part thereof is cut away to better show the internal structure thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to FIGS. **1**, **2** and **3**, the present invention relates to a luggage cart which mainly includes a handle assembly **10**, a vertical telescopic frame assembly **20**, a vertically slidable upper crossbar assembly **30**, a fixed crossbar **40**, a luggage support **50**, a foot-control assembly **60**, a horizontal telescopic frame assembly **70**, and an upper fixing member **80** and a lower fixing member **90** for mounting onto a trunk **83**.

FIG. **1** shows the luggage cart of the present invention with the vertical telescopic frame assembly **20**, the luggage support **50**, and the horizontal telescopic frame assembly **70** in a fully unfolded state, so that the trunk **83** may be loaded on the luggage support **50** and the extended horizontal telescopic frame assembly **70** of the cart to be easily move around. FIG. **2** shows the luggage cart of FIG. **1** with the telescopic frame assembly **20**, the luggage support **50**, and the horizontal telescopic frame assembly **70** in a fully folded state, so that the whole folded cart can be carried with a hand or be stored without occupying too much space. As shown in FIG. **1**, the upper fixing member **80** and the lower fixing member **90** are separately riveted to an upper and a lower portion of an outer back surface of the trunk **83**. The upper fixing member **80** is formed near two ends with two insertion holes **81** and at a center with a locating hole **82**.

Please refer to FIGS. **1**, **3**, **4**, and **5** at the same time for an internal structure of the handle assembly **10** of the luggage cart. The handle assembly **10** includes an elongated pull bar **11** located below a top housing of the handle assembly **10**. Two compression springs **12** are separately disposed between tops of two outer ends of the pull bar **11** and the top housing, so that the long pull bar **11** can be pulled upward relative to the top housing. The long pull bar **11** is formed at two end surfaces with two vertically extended grooves **13** for two connecting rods **14** to separately hook thereto at their upper ends.

The vertical telescopic frame assembly **20** includes from top to bottom a pair of inner pipes **21**, a pair of middle pipes **22**, and a pair of outer pipes **23**. The inner pipes **21** are slidably received in the middle pipes **22**, and the middle pipes **22** are slidably received in the outer pipes **23**.

The inner pipe **21** each has a first retaining member **24** inserted into a lower end thereof. The middle pipe **22** each has a middle pipe insert **25** mounted to an upper inner end thereof. When the inner pipe **21** is pulled upward inside the middle pipe **22**, a lower flange **241** of the first retaining member **24** shall abut against a lower periphery **251** of the middle pipe insert **25**, preventing the inner pipe **21** from being pulled any further to separate from the middle pipe **22**.

As can be more clearly seen from FIGS. **4** and **5**, the first retaining member **24** is provided with a guiding groove **242** for accommodating a compression spring **243** and an insertion pin **244** therein. The insertion pin **244** has a slot **245** to accommodate a lower end of a bent retaining arm **246**. The above-mentioned connecting rod **14** which each is con-

nected at an upper end to one end groove of the long pull bar **11** of the handle assembly **10** extends through the inner pipe **21** to have its lower end hooked to a hooking hole **249** formed on the bent retaining arm **246**. The bent retaining arm **246** is pivotally connected to the first retaining member **24** by a shaft **248** extending through a shaft hole **247** on the bent retaining arm **246**, so that the bent retaining arm **246** can swing inward and outward relative to the first retaining member **24**. The insertion pin **244** is normally pushed outward by the compression spring **243**, so that the insertion pin **244** projects into insertion holes A formed on the inner pipe **21** and the middle pipe **22**, allowing the inner pipe **21** to fixedly connect to the middle pipe **22** without sliding in the middle pipe **22**. However, when the connecting rod **14** is pulled upward, it shall pull the bent retaining arm **246** hooked to the lower end of the connecting rod **14** to swing inward and forces the insertion pin **244** to move inward and disengage from the insertion holes A on the inner and the middle pipes **21**, **22**. At this point, the inner pipe **21** is allowed to freely slide upward or downward in the middle pipe **22**.

As can be seen from FIGS. **1**, **3**, and **15**, the middle pipe **22** each has a second retaining member **26** inserted into a lower end thereof, and the outer pipe **23** each has an outer pipe insert **27** mounted to an upper inner end thereof. The second retaining member **26** has a structure and operation manner identical to that of the first retaining member **24** as shown in FIG. **5**. Please particularly refer to FIG. **15** now. When the inner pipe **21** is slided into the middle pipe **22**, the first retaining member **24** at the lower end of the inner pipe **21** will press against and contact with a bent retaining arm **264** of the second retaining member **26** of the middle pipe **22**, causing the bent retaining arm **264** to swing inward relative to the second retaining member **26**, forcing a compression spring **262** and an insertion pin **263** to move inward along a guiding groove **261** of the second retaining member **26** and causing the insertion pin **263** to disengage from insertion holes B' formed on the outer pipe **23**. At this point, the middle pipe **22** is allowed to freely slide upward or downward in the outer pipe **23**.

As shown in FIGS. **1**, **3**, **6**, and **7**, the upper crossbar assembly **30** is allowed to vertically slide along the two middle pipes **22**, so that the upper crossbar assembly **30** can be adjusted to a height on the middle pipes **22** corresponding to the upper fixing member **80** mounted onto a back side of the trunk **83**. The upper crossbar assembly **30** includes two symmetrically formed housing members. A first housing member is formed at a central area with a projected locating block **31** and at two sides of the locating block **31** with two symmetrical side openings B. The two side openings B are so spaced that they correspond to the two insertion holes **81** formed on the upper fixing member **80** and the projected locating block **31** corresponds to the locating hole **82** of the upper fixing member **80**.

A guide channel **32** is provided inside the upper crossbar assembly **30** for a compression spring **33** to locate therein. An operation push button **34** is provided above the compression spring **33**, such that the push button **34** can contact with the compression spring **33** to depress the latter. The push button **34** includes two side walls on each of which two opposite outward and downward inclined long holes **341** are formed. Two links **35** are disposed at two ends of the push button **34**, such that two lugs **351** symmetrically and sideward projecting from an inner end of each link **35** are located in the long holes **341** and can move reciprocatingly in the long holes **341**. A hook projection **352** is provided at one side of each link **35** to extend through and beyond the side opening B.

Please refer to FIGS. **1**, **7** and **8** at the same time. To associate the upper crossbar assembly **30** with the fixing member **80** riveted onto the trunk **83**, first get the locating block **31** in alignment with and inserted into the locating hole **82** of the upper fixing member **80**. Meanwhile, depress the operation push button **34** so that the lugs **351** are guided by the inclined long holes **341** to shift inward, causing the hook projections **352** to move inward along the side openings B and extend into the side openings **81** of the upper fixing member **80**, so that the upper fixing member **80** is associated with the upper crossbar assembly **30**.

Please refer to FIGS. **1**, **3** and **9** for the structures of the luggage support **50** and the foot-control assembly **60**. The luggage support **50** includes a platform **51** which has a central recess portion and two symmetrical hollow pipes **52** raised from two lateral sides of the platform **51** for receiving the horizontal telescopic frame assembly **70** therein.

The foot-control assembly **60** includes a pedal **61**, a pair of springs **62**, a seat **63**, and an L-shaped member **64**. An vertical portion of the L-shaped member **64** is upward inserted in a middle insertion hole **632** of the seat **63** and is fixedly connected to the pedal **61** above the seat **63** by means of a screw **633** threading into the pedal **61**, such that when the pedal **61** is stepped down, the L-shaped member **64** is moved downward at the same time, and when the pedal **61** is released, the pedal **61** and the L-shaped member **64** shall return to their higher positions due to a spring force of the pair of springs **62**. A movable L-shaped plate **634** is provided to one side surface of the seat **63**. The movable L-shaped plate **634** is formed at an inner surface with a retaining block **635** and at a bottom edge with a bevelled sliding block **636**. The retaining block **635** corresponds to a projected block **92** formed on an inner wall surface of an insertion space **91** of the lower fixing member **90**, and the bevelled sliding block **636** corresponds to a bevelled sliding channel **641** formed on a wall surface of the L-shaped member **64**.

As shown in the figures, the luggage support **50** and the foot-control assembly **60** are assembled together by extending a pivotal shaft **53** through shaft holes **54** formed on the luggage support **50** and shaft holes **637** formed on the seat **63**. Then, two torsional springs **55** and two wheels **56** are mounted to two outer ends of the pivotal shaft **53** to complete the assembling of the vertical telescopic frame assembly **20**, the foot-control assembly **60**, and the luggage support **50**.

Please refer to FIGS. **10** and **11**. When the trunk **83** is loaded on the luggage support **50** and is to be associated with the vertical telescopic frame assembly **20**, first get the insertion space **91** of the lower fixing member **90** on the trunk **83** in alignment with and engaged into the L-shaped plate **634** provided to one side surface of the seat **63**. At this point, the projected block **92** of the lower fixing member **90** and the retaining block **635** of the L-shaped plate **634** abut against one another to locate the trunk **83** in place. And, to disengage the lower fixing member **90** from the telescopic frame assembly **20**, simply step down the pedal **61** to cause the L-shaped member **64** to move downward at the same time. At this point, the bevelled sliding block **636** of the L-shaped plate **634** shall disengage from the bevelled sliding channel **641** of the L-shaped member **64**, and the retaining block **635** of the L-shaped plate **634** shall simultaneously disengage from the projected block **92** of the lower fixing member **90**, allowing the lower fixing member **90** to separate from the L-shaped plate **634**.

As shown in FIG. **3**, the L-shaped member **64** is provided at a front edge with a hook portion **642**. When the luggage

support **50** is folded toward the telescopic frame assembly **20** as shown in FIG. **2**, the hook portion **642** shall engage into a retaining hole **57** formed at a rear portion of the luggage support **50**, so that the folded luggage support **50** and the telescopic frame assembly **20** are not easily separated from one another. To unfold the luggage support **50** for use as shown in FIG. **1**, simply step down the pedal **61** to move the L-shaped member **64** downward, and the luggage support **50** can be separated from the telescopic frame assembly **20**.

FIGS. **12**, **13** and **14** illustrate a second embodiment of the upper crossbar assembly **30** and the corresponding upper fixing member **80**. In this embodiment, the upper fixing member **80** is formed of a central insertion hole **84** which includes a narrow upper portion and an expanded lower portion, and the upper crossbar assembly **30** includes two symmetrical housing members. One of the housing members is formed at a side surface with an opening C corresponding to the central insertion hole **84** of the upper fixing member **80**. The upper crossbar assembly **30** of the second embodiment also includes an inner guide groove **32** in which a compression spring **33** is disposed. The upper crossbar assembly **30** of the second embodiment also includes an operation push button **36** disposed above the compression spring **33**. Two links **37** are connected to two outer ends of the operation push button **36**. An insertion button **361** projects from a central portion of a side wall of the operation push button **36**, so that the insertion button **361** shall extend through and beyond the insertion hole C on one housing member of the upper crossbar assembly **30**. When the operation push button **36** is depressed, the insertion button **361** shall be in alignment with the expanded lower portion of the insertion hole **84** on the upper fixing member **80** and can be directly inserted into the insertion hole **84**. When the push button **36** is released, the compression spring **33** shall push the push button **36** upward and therefore brings the insertion button **361** to move upward into the narrow upper portion of the insertion hole **84**, causing the upper crossbar assembly **30** to firmly associate with the upper fixing member **80**.

As shown in FIGS. **1** and **3**, the horizontal telescopic frame assembly **70** includes a pair of outer pipes **71**, a pair of inner pipes **72**, and a transverse plate **73**. The outer pipes **71** are separately fixedly received in the two raised hollow pipes **52** of the luggage support **50**. The inner pipes **72** are slidably received in the two outer pipes **71**. The outer pipe **71** each has an outer pipe insert **74** connected to a front inneer end of the outer pipe **71**, and the inner pipe **72** each has an inner pipe insert **75** connected to a rear inner end of the inner pipe **72**.

While the present invention is described with a trunk **83** as the luggage to be loaded on the present invention, it is to be understood that other types of bags, satchels, baskets, and containers all can be mounted with the upper and the lower fixing members **80** and **90**, respectively, of the present invention and therefore be stably carried on the luggage cart of the present invention for easily moving around.

What is claimed is:

1. A luggage cart comprising:

a handle assembly including a top housing, an elongated pull bar located below said top housing, and two compression springs separately disposed between tops of two outer ends of said pull bar and said top housing; said long pull bar being formed at two end surfaces with two vertically extended grooves;

a vertical telescopic frame assembly including from top to bottom a pair of inner pipes, a pair of middle pipes, and a pair of outer pipes, said inner pipes being slidably received in said middle pipes, said middle pipes being slidably received in said outer pipes, and said outer pipes having two lower ends inserted into two side holes formed on a foot-control assembly of said luggage cart;

an upper crossbar assembly being vertically slidable along said middle pipes and including two symmetrically formed housing members, one of said two housing members being formed at a central area with a projected locating block and at two sides of said locating block with two symmetrical side openings;

a fixed crossbar;

a luggage support including a platform which has a central recess portion and two symmetrical hollow pipes raised from two lateral asides of said platform;

a foot-control assembly including a pedal, a pair of springs, a seat, and an L-shaped member, a vertical portion of said L-shaped member being upward inserted into an insertion hole of said seat and being fixedly fastened to said pedal above said seat by means of a screw;

a horizontal telescopic frame assembly including a pair of outer pipes, a pair of inner pipes, and a transverse plate, said outer pipes being fixedly received in said two raised hollow pipes of said luggage support, and said inner pipes being slidably received in said outer pipes of said horizontal telescopic frame assembly;

an upper fixing member being fixedly mounted onto a back surface of a luggage to be carried by said luggage cart, said upper fixing member being formed near two ends with two insertion holes and at a center with a locating hole; and

a lower fixing member being fixedly mounted onto a back surface of said luggage below said upper fixing member, said lower fixing member defining a central insertion space and at an inner wall surface of said insertion space with a projected block;

whereby said luggage cart may be used to carry various types of luggages in different dimensions in a labor-saving manner, and said luggage cart can be folded to a small volume for storage when it is not in use.

2. A luggage cart as claimed in claim **1**, wherein said inner pipes and said middle pipes of said vertical telescopic frame assembly all have a retaining member connected to their respective lower inner ends, said retaining member each being provided with a guide groove for accommodating a compression spring and an insertion pin therein, and said insertion pin being provided with a slot for a lower end of a bent retaining arm of said retaining member to extend thereinto.

3. A luggage cart as claimed in claim **2**, wherein said inner pipes of said vertical telescopic frame assembly respectively have a connecting rod extending through said inner pipes, said connecting rod each having an upper end hooked to one of said vertically extended grooves formed on said long pull bar of said handle assembly and a lower end hooked to a hooking hole formed on each said bent retaining arm of said retaining member.

4. A luggage cart as claimed in claim **1**, wherein said upper crossbar assembly is provided at an inner side with a guide groove for a compression spring to dispose therein, and an operation push button being provided over said compression spring, and said operation push button being formed at each side wall with two outward and downward inclined holes opposite to one another.

JS005697624A

United States Patent [19]

Faraj

[11] Patent Number: 5,697,624

[45] Date of Patent: Dec. 16, 1997

[54] **CART FOR TRANSPORTING GROCERY BAGS AND CARTONS**

[76] Inventor: **Abdul-Razzak Faraj**, 3481 Lakeside Dr. Apt 2806, Atlanta, Ga. 30326

[21] Appl. No.: **541,143**

[22] Filed: **Oct. 11, 1995**

[51] **Int. Cl.**[6] **B62B 1/00**

[52] **U.S. Cl.** **280/47.19**; 280/47.32

[58] **Field of Search** ..... 280/47.17, 47.18, 280/47.19, 645, 47.24, 47.26, 47.28, 47.29, 47.32, 47.315, 47.3, DIG. 3, 652, DIG. 4, 78; 248/97, 98

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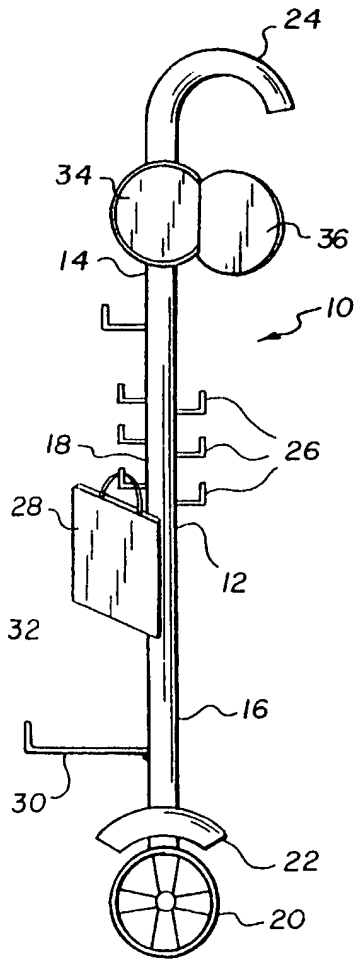
Primary Examiner—Richard M. Camby
Attorney, Agent, or Firm—John L. James

[57] **ABSTRACT**

A cart is provided for transporting bags, cartons and other containers of groceries or other items from the point of purchase. The cart has a support member with a top and bottom end portions and a middle portion intermediate the top and bottom end portions. A wheel is resiliently mounted on the bottom end portion of the support member and a handle is attached to the top end portion of the support member. A plurality of hooks are positioned on the middle portion of the support member for receiving handles of bags of groceries or other items and supporting the bags for transport. A foldable bracket on the middle portion of the support member below the hooks for supports a container, such as a carton of soft drinks or bag of animal food.

15 Claims, 1 Drawing Sheet



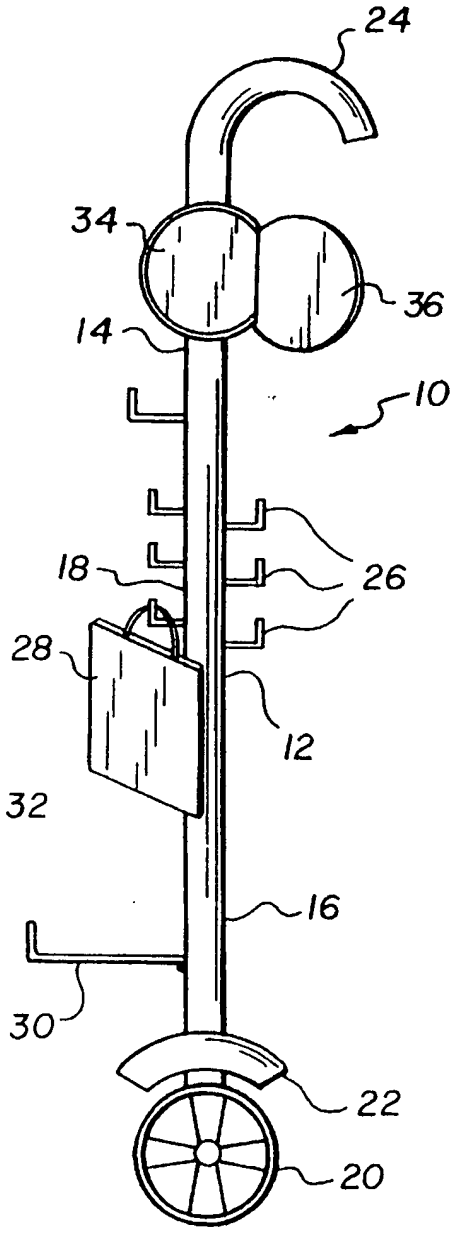

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FIG. 1

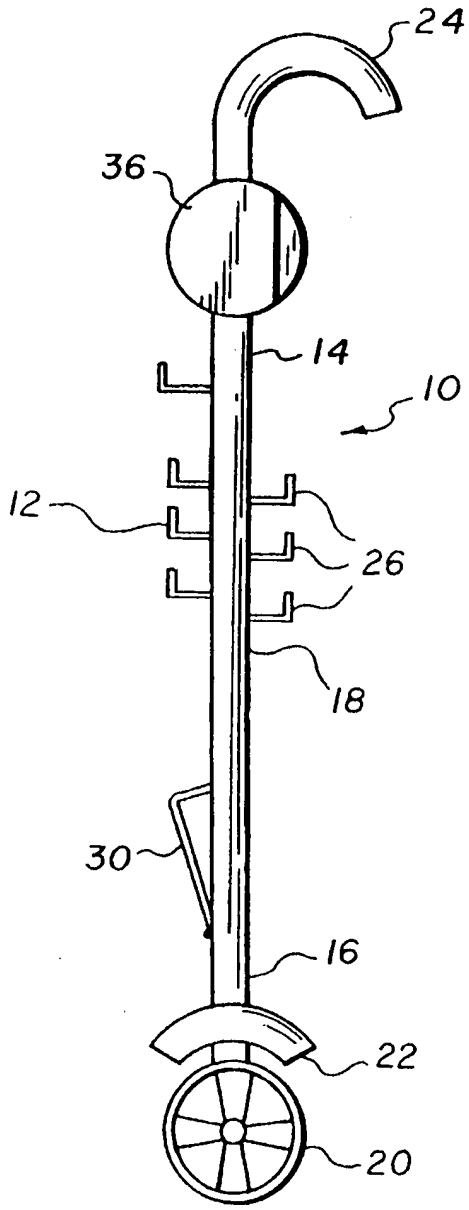
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FIG. 2

CART FOR TRANSPORTING GROCERY BAGS AND CARTONS

FIELD OF THE INVENTION

The present invention relates generally to a hand cart, and, more particularly, to a hand cart for transporting bags and other containers of food from a grocery facility.

BACKGROUND OF THE INVENTION

Grocery shopping is a chore that is done regularly. At the check out counter bags, boxes, cartons and other containers of groceries and supplies are typically loaded into a four wheel grocery cart for transport to a shopper's automobile where the groceries are removed from the cart and loaded into the automobile. The empty cart is then returned to a designated area. Four wheeled carts requiring the use of both hands are often cumbersome to use and returning them to a designated area is often a chore. It is desirable to have a simple cart for transporting groceries that is easy to use and that a shopper can own to eliminate the chore of returning a cart to a designated area.

In many instances, grocery shopping is not done using a personal automobile, but is done using public transportation or by foot. In these instances, shoppers rely on baskets and two wheeled carts into which purchased items are placed for transport from the grocery store to their residences. Unfortunately, baskets are small limiting the amount of groceries transported, and two wheeled carts present a storage problem when not in use. Also, many two wheeled carts form a cage or basket into which the grocery containers are stacked one on top of another causing the bottom container to be crushed thereby damaging the goods. Accordingly, it will be appreciated that it would be highly desirable to have a compact shopping cart that holds a large supply of groceries without stacking the grocery bags on top of each other, and that is easy to store when not in use. It is also desirable to have a shopping cart that can be carried on buses and subway trains while loaded with groceries.

SUMMARY OF THE INVENTION

The present invention is directed to overcoming one or more of the problems set forth above. Briefly summarized, according to one aspect of the present invention, a cart comprises a support member having top and bottom end portions with a middle portion intermediate the top and bottom end portions, a wheel mounted on the bottom end portion of the support member, a handle attached to the top end portion of the support member, and a plurality of hooks on the middle portion of the support member with each hook of the plurality of hooks being positioned for receiving a handle of a container and supporting the container.

Including a foldable bracket on the middle portion of the support member below the plurality of hooks provides a supporting platform a container, particularly a container without handles such as a soft drink carton or container of pet food. Hingedly connecting the bracket to the support member allows the bracket to move between a closed, storage position at which the bracket rests against the support member and an open, work position at which the bracket extends from the support member to provide a supporting platform.

To aid conservation and recycling efforts, a storage compartment located in the support member above the plurality of hooks provides a convenient place to store reusable bags for carrying goods. A compartment door secures and nearly retains the bags in the storage compartment until needed.

These and other aspects, objects, features and advantages of the present invention will be more clearly understood and appreciated from a review of the following detailed description of the preferred embodiments and appended claims, and by reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a diagrammatic side view of a preferred embodiment of a cart according to the present invention with a bracket extended for holding a carton and with a storage compartment door open.

FIG. **2** illustrates the cart of FIG. **1** with the door closed and bracket folded in toward the support member of the cart.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1–2**, a cart **10** for transporting groceries and other items has a support member **12** with a top end portion **14**, a bottom end portion **16** and a middle portion **18** intermediate the top and bottom end portions **14**, **16**. The support member **12** is preferably constructed of hollow metal or plastic about three to five inches wide but can be constructed of metal or plastic tubing.

A wheel assembly **20** is mounted on the bottom end portion **16** of the support member **12**. The wheel assembly **20** may contain a rigidly mounted pneumatic tire, but a resiliently mounted tire is preferred for smooth movement. A spring or shock absorber **22** may be used to provide the desired resiliency. The wheel **20** preferably pivots for easy maneuverability. While only a single wheel is required, dual wheels can be used and will give the cart the ability to stand alone while unattended.

A handle **24** attached to the top end portion **14** of the support member **12** is used by a shopper to hold the cart upright when in use and to steer the cart. Steering is accomplished using only one hand while the other hand remains free. The handle **24** is preferably a curved handle similar to the handle of an umbrella or walking cane. The combination of the curved handle **24** and single wheel **20** make the cart **10** easy to maneuver and thus well suited for shoppers of various ages and abilities.

A plurality of U-shaped or J-shaped hooks **26** are located on the middle portion **18** of the support member **12**. Each of the hooks **26** is positioned for receiving a handle or handles of a first container **28**, such as a bag, and supporting the container **28**. The hooks **26** are preferably located around the entire periphery of the support member **12** but may be located only on the sides of the support member **12** to allow more space for the shopper to walk behind the cart **10**. The hooks **26** are spaced so that individual containers **28** are not stacked atop one another or crowded against one another to thereby protect the merchandise in the containers from damage.

A bracket **30** hingedly connected to the middle portion **18** of the support member **12** below the plurality of hooks **26** is provided for supporting a second container **32**, such as a carton of soft drinks or bag of pet food or other container without handles. The hinged bracket **30** is moveable between a closed, storage position at which the bracket **30** rests against the support member **12** and an open, work position at which the bracket **30** extends from the support member **12**. Alternatively, at the closed, storage position, the bracket **30** may be folded alongside the support member without actually contacting the support member. At the open, work position, the bracket **30** is preferably perpen-

dicular to the support member **12**. Preferably, the bracket **30** is spring loaded to automatically return the bracket to the closed storage position when not in use. The bracket **30** is preferably of about equal width with the support member **12**, but may be wider to provide more support for wide loads. Also, an upturned lip on the distal end of the bracket **30**, along with straps wrapped about the container and support member, keeps containers positioned on the bracket.

Many shoppers use reusable bags as a conservation effort. A storage compartment **34** located in the support member **12** above the plurality of hooks **26** is useful for storing bags until needed. The storage compartment **34** may be fitted with a door **36** to secure the contents of the storage compartment.

It can now be appreciated that a cart for transporting grocery bags and cartons has been presented. The cart has a support member with a top end portion, a bottom end portion and a middle portion intermediate the top and bottom end portions. A single, pivotal wheel is resiliently mounted on the bottom end portion of the support member. A curved handle is attached to the top end portion of the support member for one handed control of the cart. Hooks on the middle portion of the support member receive handles bags and support the bags of groceries. A folding support bracket on the middle portion of the support member below the hooks supports containers without handles. The bracket folds against the support member for storage. A storage compartment with a door provides a convenient place for storing bags.

The cart is a compact shopping cart that holds a large supply of groceries without having to stack the grocery bags on top of each other. The cart is easy to use and stores easily when not in use. The shopping cart that can be carried on buses and other public conveyances while loaded with groceries. Because the cart is a simple one wheeled cart that is easy to manufacture, it is affordable so that a shopper can own a cart and thereby eliminate the tedious chore of returning a store owned cart to a designated area.

While the invention has been described with particular reference to the preferred embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements of the preferred embodiments without departing from invention. For example, the hooks may be integrally formed on the support member or may be mechanically attached. Also, the storage compartment can be made to have a larger dimension than the support member for added storage capacity. In addition, many modifications may be made to adapt a particular situation and material to a teaching of the invention without departing from the essential teachings of the present invention.

As is evident from the foregoing description, certain aspects of the invention are not limited to the particular details of the examples illustrated, and it is therefore contemplated that other modifications and applications will occur to those skilled in the art. For example, a fender may be added to the wheel for aesthetic effect and to prevent water or slush from soiling the shopper. It is accordingly intended that the claims shall cover all such modifications and applications as do not depart from the true spirit and scope of the invention.

What is claimed is:

1. A cart, comprising:

a support member having a top end portion, a bottom end portion and a middle portion intermediate said top and bottom end portions;

a storage compartment in said support member;

a wheel mounted on said bottom end portion of said support member;

a handle attached to said top end portion of said support member;

a plurality of hooks on said middle portion of said support member, each hook of said plurality of hooks being positioned for receiving a handle of a first container and supporting said container; and

a bracket on said middle portion of said support member below said plurality of hooks for supporting a second container.

2. A cart, as set forth in claim **1**, wherein said bracket is hingedly connected to said support member.

3. A cart, as set forth in claim **1**, wherein said bracket is moveable between a closed, storage position at which said bracket rests against said support member and an open, work position at which said bracket extends from said support member.

4. A cart, as set forth in claim **3**, wherein said bracket is perpendicular to said support member at said work position.

5. A cart, as set forth in claim **1**, wherein said storage compartment lies above said plurality of hooks.

6. A cart, as set forth in claim **1**, including a door to said storage compartment.

7. A cart, as set forth in claim **1**, including shock absorbing means for mounting said wheel on said support member.

8. A cart for transporting groceries and other items, comprising:

a longitudinally extending support member having a top end portion, a bottom end portion and a middle portion intermediate said top and bottom end portions;

a storage compartment in said support member;

a wheel mounted on said bottom end portion of said support member;

a handle attached to said top end portion of said support member;

a plurality of hooks on said middle portion of said support member for receiving handles of first containers of said groceries and other items and supporting said containers; and

a bracket on said middle portion of said support member below said plurality of hooks for supporting a second container.

9. A cart, as set forth in claim **8**, wherein said bracket is hingedly connected to said support member.

10. A cart, as set forth in claim **8**, wherein said bracket is moveable between a storage position at which said bracket rests against said support member and a work position at which said bracket extends from said support member.

11. A cart, as set forth in claim **10**, wherein said bracket is perpendicular to said support member at said work position.

12. A cart, as set forth in claim **8**, wherein said storage compartment lies above said plurality of hooks.

13. A cart, as set forth in claim **8**, including a door to said storage compartment.

14. A cart, as set forth in claim **8**, including shock absorbing means for mounting said wheel on said support member.

15. A cart, comprising:

a support member having a top end portion, a bottom end portion and a middle portion intermediate said top and bottom end portions;

a wheel mounted on said bottom end portion of said support member;

a handle attached to said top end portion of said support member;

a plurality of hooks on said middle portion of said support member, each hook of said plurality of hooks being positioned for receiving a handle of a first container and supporting said container.

a bracket hingedly connected to said middle portion of said support member below said plurality of hooks for supporting a second container, said bracket being moveable between a closed, storage position at which said bracket rests against said support member and an open, work position at which said bracket extends from said support member;

a storage compartment in said support member above said plurality of hooks; and

a door to said storage compartment.

* * * * *

US005621950A

United States Patent [19]

White

[11] Patent Number: 5,621,950

[45] Date of Patent: Apr. 22, 1997

[54] **SPRING BIASED PAPER CLIP**

[76] Inventor: **Marvin D. White**, 175 Telegraph Rd., Stafford, Va. 22554

[21] Appl. No.: **562,549**

[22] Filed: **Nov. 24, 1995**

[51] **Int. Cl.**[6] **B42F 1/02**

[52] **U.S. Cl.** **24/67.5**; 24/67.11; 24/565; 24/566

[58] **Field of Search** ..... 24/67.5, 67.3, 24/67 R, 67.11, 567, 566, 565, 507

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Primary Examiner—Peter M. Cuomo
Assistant Examiner—Hanh V. Tran

[57] **ABSTRACT**

A spring-loaded paper clip has a pair of plate elements which are hingedly connected together and which are provided with raised projections to improve gripping force so that the clip can hold large quantities of paper together without slipping or shifting.

1 Claim, 3 Drawing Sheets

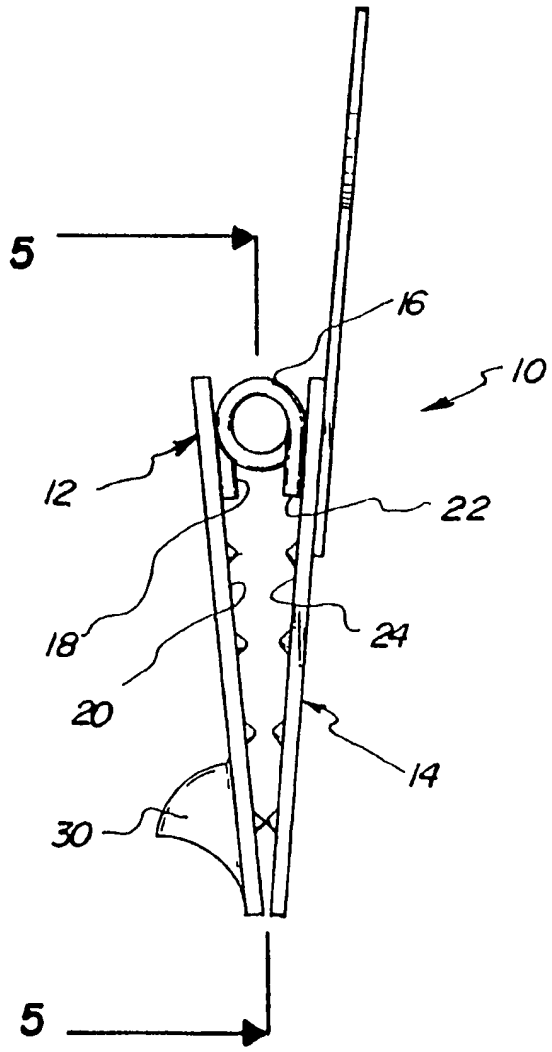
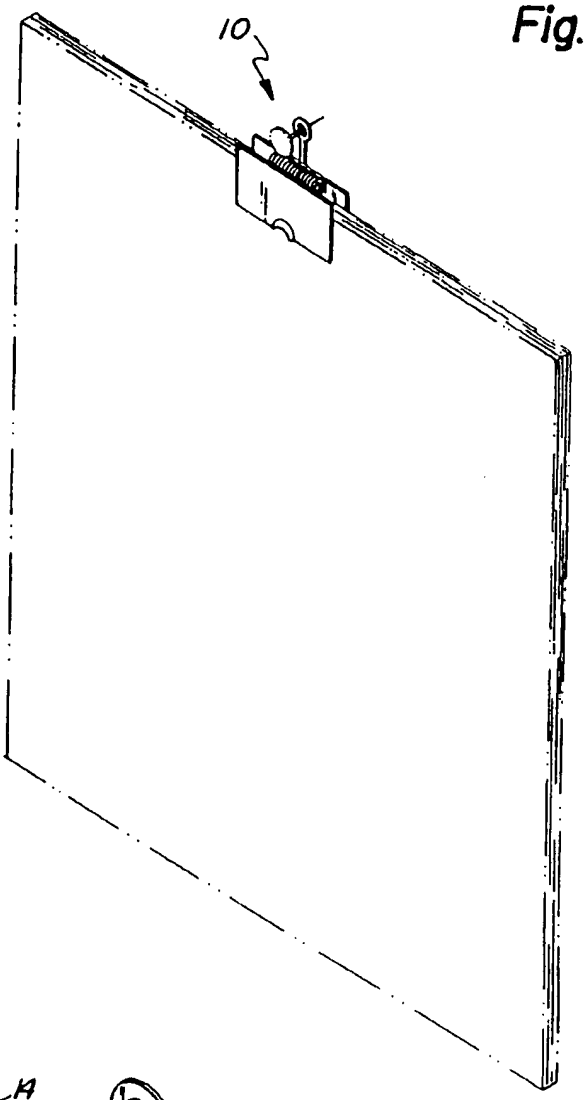


Fig. 1



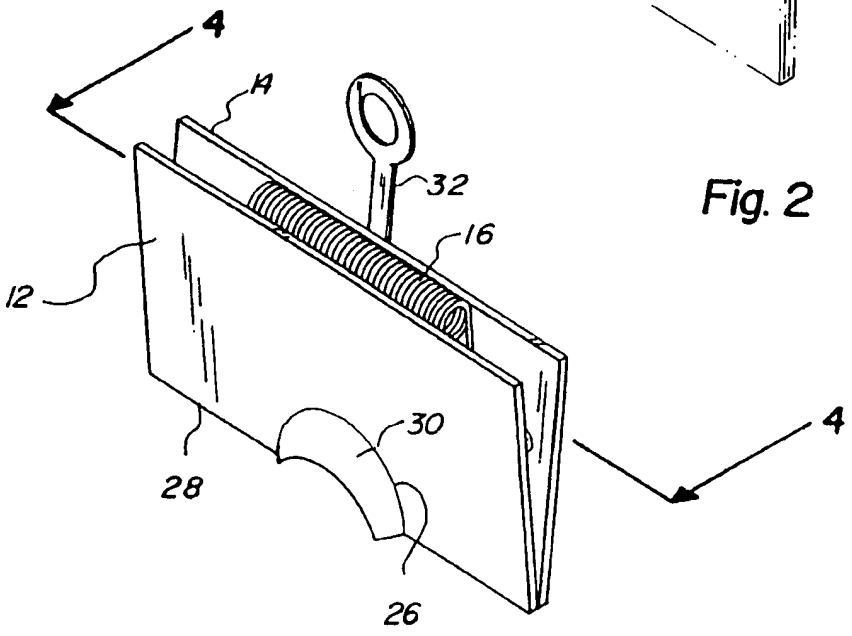


Fig. 2

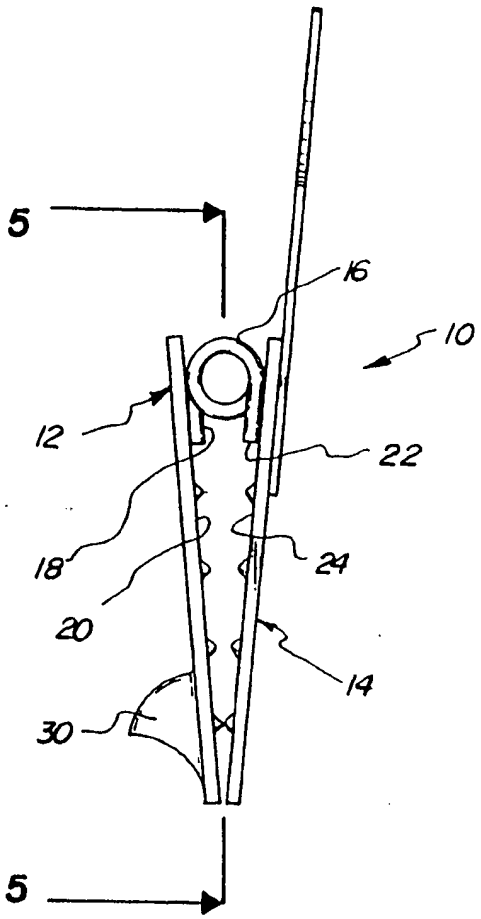


Fig. 3

Fig. 4

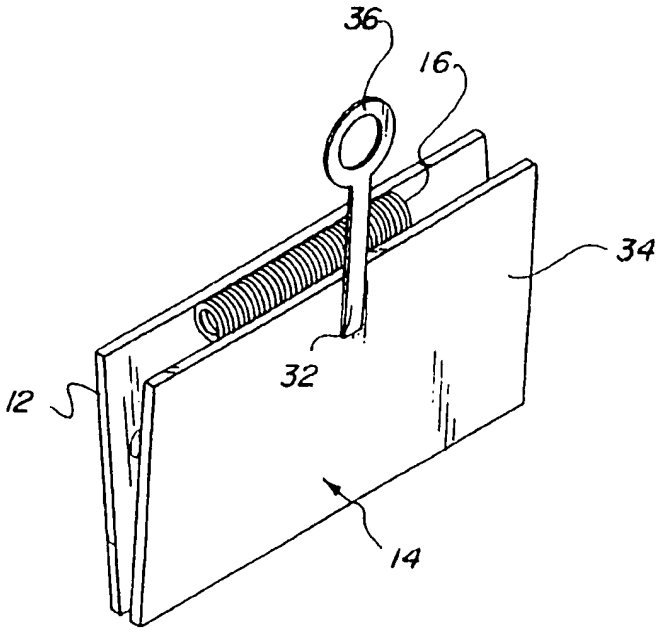


Fig. 5

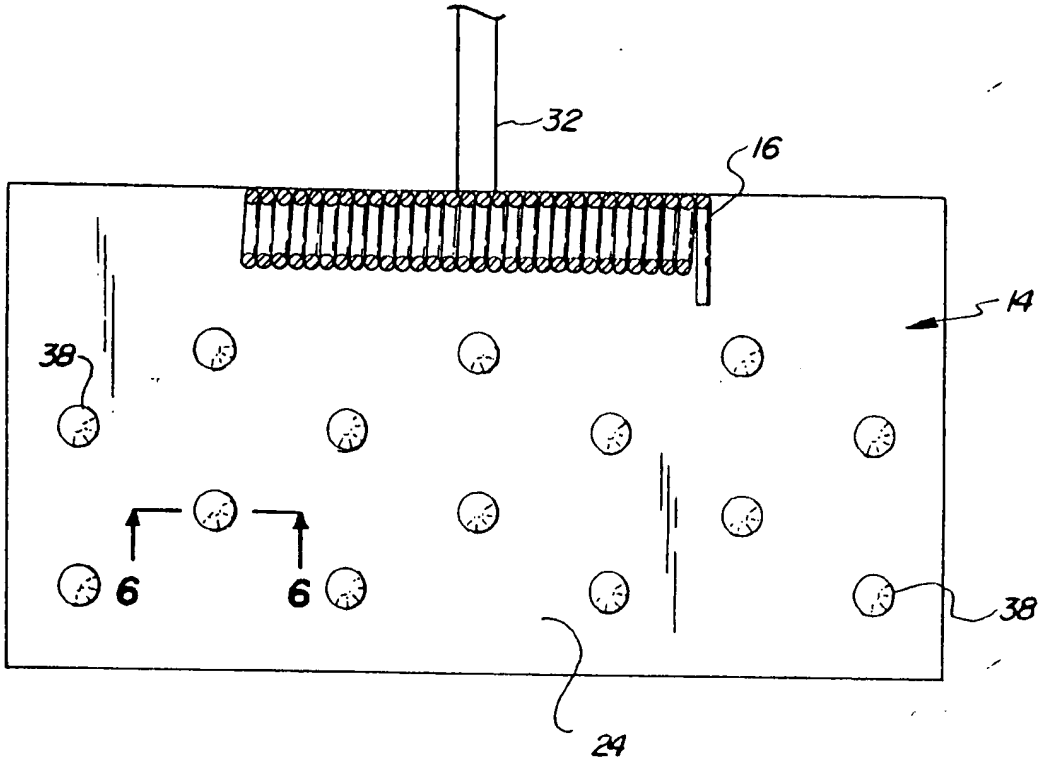
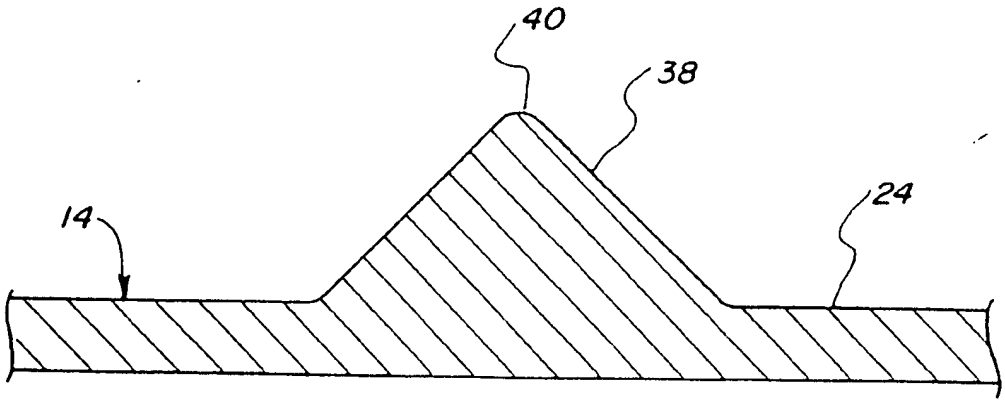


Fig. 6



SPRING BIASED PAPER CLIP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to paper clips and more particularly pertains to a spring-biased paper clip having improved opening means and paper gripping surfaces.

2. Description of the Prior Art

The use of various types of spring clips for holding sheets of paper together are well known in the prior art. For example, a representative embodiment of a spring clip formed from a single sheet of elastic metal plate is to be found in U.S. Pat. No. 5,309,605, which issued to Sato on May 10, 1994. Another example of this type of integral clip is to be found in U.S. Pat. No. 4,947,524, which issued to Chang on Aug. 14, 1990, wherein there is disclosed a paper clip formed from a single sheet of steel that has been bent into a U-shaped structure.

In addition to paper clips formed from a single sheet of material, there has been an effort to develop paper clips formed from a plurality of parts. An example of this type of multi-part paper clip is shown in U.S. Pat. No. 5,079,808, which issued to Brown on Jan. 14, 1992. The Brown Patent discloses a paper clip formed from a pair of plate elements having clamping edges and being hingedly connected together. A cantilever spring extends from an inner surface of one plate element and engages the inner surface of the opposite plate element, and the cantilever spring is utilized to provide an increasing clamping force with increasing document thickness. A plurality of ridges are provided on the clamping edges of the plates, and the ridges are designed to be parallely aligned and overlapping so as to achieve a better grip on documents retained between the plates.

While each of these prior art patents disclose paper gripping devices which fulfill their respective particular objectives and requirements, and are most likely quite functional for their intended purposes, it will be noted that none of the illustrated paper clips are particularly designed for holding large quantities of paper together through the use of specialized gripping surfaces, increased spring strength, and improved means for forcing paper engaging surfaces apart as would be necessary when utilizing a high tension spring. In this respect, the present invention substantially fulfills this need.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of paper clips now present in the prior art, the present invention provides a new paper clip wherein the same can be utilized to securely grip large quantifies of paper without a concern that the paper may slip or shift when retained by the clip. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a paper clip and method which has many of the advantages of the paper clips mentioned heretofore and many additional novel features that result in a paper clip which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art paper clips, either alone or in any combination thereof.

To attain this, the present invention generally comprises a spring-loaded paper clip which has a pair of plate elements which are hingedly connected together and which are provided with raised projections to improve gripping force so

that the clip can hold large quantities of paper together without slipping or shifting.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

It is therefore an object of the present invention to provide a new paper clip and method which has many of the advantages of the paper clips mentioned heretofore and many novel features that result in a paper clip which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art paper clips, either alone or in any combination thereof.

It is another object of the present invention to provide a new paper clip which may be easily and efficiently manufactured and marketed.

It is a further object of the present invention to provide a new paper clip which is of a durable and reliable construction.

An even further object of the present invention is to provide a new paper clip which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such paper clip economically available to the buying public.

Still yet another object of the present invention is to provide a new paper clip which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

Still another object of the present invention is to provide a new and improved paper clip which facilitates the use of specialized gripping surfaces to hold large quantities of paper.

Yet another object of the present invention is to provide a new and improved paper clip which utilizes an enlarged tension spring along with special gripping means to facilitate the retention of a large quantity of paper together without a concern that the paper might slip or shift relative to the paper clip.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. **1** a perspective view of the spring-loaded fastener comprising the present invention and showing the same being utilized to retain a quantity of paper together.

FIG. **2** is an enlarged perspective view of the invention.

FIG. **3** is an end elevation view of the invention.

FIG. **4** is a cross-sectional view of the invention as viewed along the line **4—4** in FIG. **2**.

FIG. **5** is a cross-sectional view of the invention as viewed along the line **5—5** of FIG. **3**.

FIG. **6** is a cross-sectional view of the invention as viewed along the line **6—6** in FIG. **5**.

DESCRIPTION OF PREFERRED EMBODIMENTS

With reference now to the drawings, and in particular to FIGS. **1–4** thereof, a new paper clip embodying the principles and concepts of the present invention and generally designated by the reference numeral **10** will be described.

More specifically, it will be noted that the paper clip **10** comprising the present invention essentially consists of a first rectangular plate **12** hingedly connected to a second rectangular plate **14** wherein the hinge consists of a tightly coiled and very rigid tension spring **16** positioned therebetween. As best illustrated in FIG. **3**, one end **18** of the spring **16** is fixedly secured by some conventional means, such as by welding or the like, to an inner face **20** of the first plate **12**, and the second remaining end **22** of the spring is similarly fixedly secured to an inner face **24** of the plate **14**. The spring **16**, in addition to functioning as a hinge, operates to retain the paper contacting faces **20**, **24** of the respective plates **12**, **14** in a close abutting relationship.

Normally, a pair of plates **12**, **14** retained together by a tension spring **16** could be forced apart by applying a squeezing or compressive force along top edges of the plates at the opposed ends of the spring. However, inasmuch as the spring **16** is of a substantially strong design in the present invention **10**, the first plate **12** is provided with a curvilinear cut-out **26** along a bottom edge **28** thereof, and an upstanding concavely-shaped finger grip **30** is permanently, fixedly secured around the edge of the cut-out. As best illustrated in FIG. **3**, the finger grip **30** is particularly well shaped to receive the end of a user's finger so as to serve as a first gripping means to assist the user in forcing the plates **12**, **14** apart against the retaining force provided by the spring **16**. Of course, as will be readily understood, when a user is employing the use of the finger member **30** to force the plates **12**, **14** apart, he will be holding the second plate **14** between the fingers of his opposite hand or otherwise, the finger member **30** would not be functionally usable.

The paper clip **10** further includes a hanging means in the form of an elongated member **32** fixedly attached by some conventional means to a rear surface **34** of the plate **14**. Typically, the hanging member **32** would be of a strong metallic construction and could be conventionally welded to the rear surface **34** of the plate **14**. In its preferred form, the hanging member **32** will be provided with a closed loop **36** at a top end thereof whereby a tack or some similar type of fastener could be utilized to fasten the paper clip **10** to a vertical support surface, such as a wall, bulletin board, or the like.

To improve the gripping force and paper retaining capability of the contact faces **20**, **24** of the respective plates **12**, **14**, a series of opposed protrusions, arranged in staggered rows and columns each of which is generally designated by the reference numeral **38**, are integrally formed on the opposed paper contacting faces of the plates. As shown in FIGS. **5** and **6**, each protrusion **38** is essentially formed as a cone having a smooth curvilinearly shaped apex **40**. Depending upon their alignment on the opposed faces **20**, **24** of the respective plates **12**, **14**, the cones can be caused to overlap with spaces therebetween, or they can be aligned to bring their opposed apexes **40** into an abuttable engagement. In the preferred embodiment, the apexes **40** will abut together, as best illustrated in FIG. **3**, so as to provide pinpoint, strong compressive forces for holding a large quantity of paper together between the plates **12**, **14**, without an undue amount of compressive damage to the papers. At most, only a plurality of pinpoint indentations will be visible upon the quantifies of paper held together upon their removal from between the plates **12**, **14**, thereby minimizing the amount of aesthetic and other damage to the paper.

While in the preferred embodiment, the apexes **40** of opposed protrusions **38** will be abuttable together with the curvilinear shape of each apex preventing holes from being punctured in the paper, it is also within the intent and purview of the present invention to have the outer peripheral surfaces of opposed protrusions **38** to be aligned in an engaging manner, provided that the plate contact surfaces **20**, **24** could be brought into a flush abutting relationship. While this could cause a greater amount of aesthetic damage to the paper held together, it could provide an increased gripping force in certain situations. Therefore, all variations of alignments available to the opposed protrusions **38** are intended to be encompassed by the claims appended hereto. As such, the paper clip **10** comprising the present invention provides the holding power of a large fastener with the ease of a paper clip. The flat plates **12**, **14** prevent marks in the paper while the protrusions **38** hold the entire pile of paper tightly. This fastener **10** can accommodate heavy gauge paper which often breaks standard fasteners, and the tension spring **16** in the hinge provides control without adding extra weight to the device. It is perfect for large documents that must be displayed on a bulletin board.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the

parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as being new and desired to be protected by LETTERS PATENT of the United States is as follows:

1. A new and improved spring-loaded fastener for holding a large quantity of paper together, the apparatus adapted for use in association with a large quantity of paper together, the apparatus adapted for use in association with a large quantity of paper, said spring loaded fastener comprising:

a first rectangular plate having a long width and a short height and having an upper end and a lower end and further having an inner face and an outer face;

a second rectangular plate having a long width and a short height and having an upper end and a lower end and further having an inner face and an outer face

a tension spring with a first end and a second end, said tension spring being connected to said first plate and said second plate with the first end secured to the inner face of the first plate adjacent to the upper end thereof and the second end secured to the inner face of the second plate adjacent to the upper end thereof, said tension spring providing a substantial closing force between said first and second plates, thereby to normally keep first and second plates in an abutting relationship at lower ends thereof;

first gripping means for permitting a user to efficiently grip and force apart said first and second plates, whereby a large quantity of paper can be positioned between said first and second plates, the large quantity of paper being firmly gripped and retained between said first and second plates upon release of said first gripping means by a user of said fastener;

second gripping means formed on opposed paper contacting faces of said first and second plates; and

said second gripping means comprising a plurality of staggered rows and columns of raised protrusions on the majority of inner faces of each of said opposed paper contacting faces of said first and second plates, said protrusions on each face being engageable with said large quantity of paper, said raised protrusions being formed in a generally conical shape with a curvilinearly shape apex;

said protrusions on said first plate aligned and abuttable with said protrusions on said second plate, thereby to provide an increased gripping force between said first and second plates at a point of contact between said protrusions;

said first gripping means comprising a raised finger receiving surface on said first plate, whereby a finger of said user can be inserted therein to apply an opening force between said first and second plates; and

hanging means attached to the outer face of said second plate, said hanging means having a top end formed as a closed loop for facilitating an attachment of said fastener to a substantially vertical support surface, thereby to permit an accessible displaying of the large quantity of paper when the large quantity of paper is retained between said first and second plates.

* * * * *

US005301393A

United States Patent [19]

Brown

[11] Patent Number: 5,301,393

[45] Date of Patent: Apr. 12, 1994

[54] SPRING BIASED CLIP AND METHOD OF MAKING

[76] Inventor: Dwight C. Brown, 1516 N. Nicholas St., Arlington, Va. 22205

[21] Appl. No.: 780,289

[22] Filed: Oct. 22, 1991

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 587,029, Sep. 24, 1990, Pat. No. 5,079,808.

[51] Int. Cl.[5] A44B 21/00

[52] U.S. Cl. 24/67.7; 24/499; 24/511

[58] Field of Search ..... 24/67.7, 67.5, 67 R, 24/67.3, 489, 499, 501, 507, 510, 511, 498, 500

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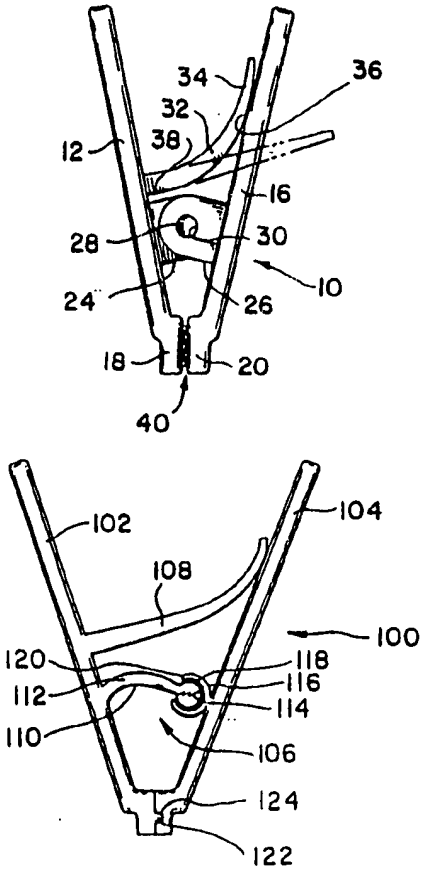
Primary Examiner—Victor N. Sakran

Attorney, Agent, or Firm—William L. Klima

[57] ABSTRACT

A spring biased clip comprising a pair of clamping elements hingedly connected together in combination with a spring. In a preferred embodiment, the clamping elements have hinge and spring components and are integral male and female snap connection elements which are extruded to form stock materials, which can then be out to length and assembled by a snap connection.

18 Claims, 3 Drawing Sheets



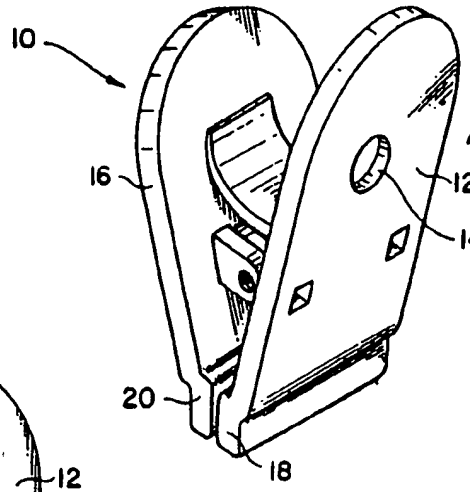


FIG. 1

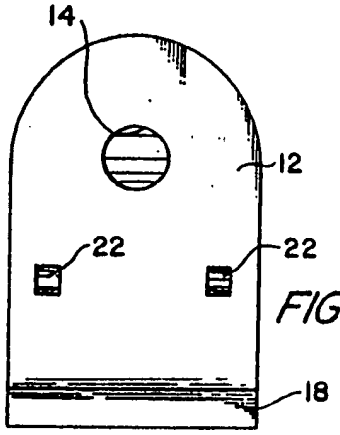


FIG. 2

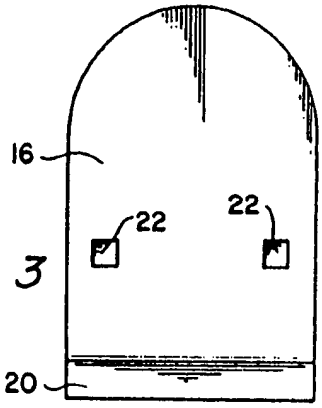


FIG. 3

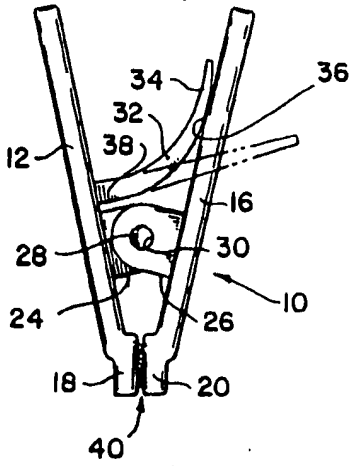


FIG. 4

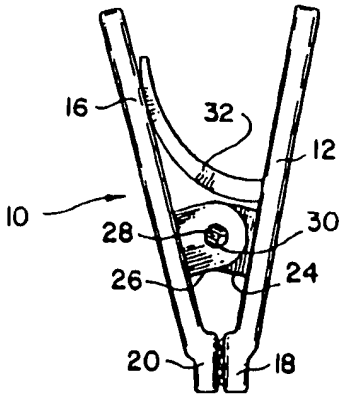


FIG. 5

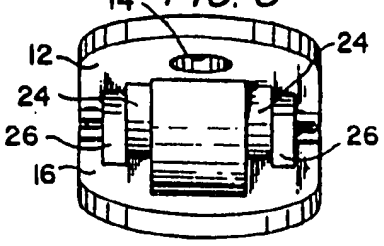


FIG. 6

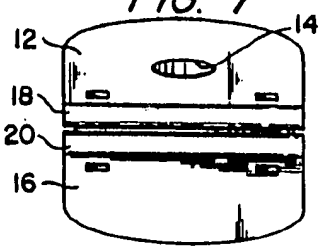


FIG. 7

FIG. 8

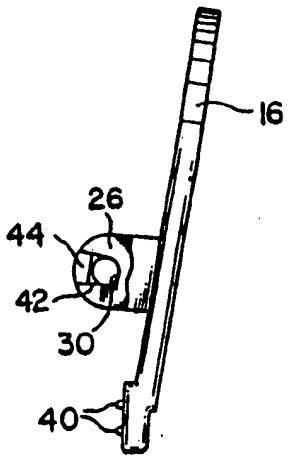


FIG. 9

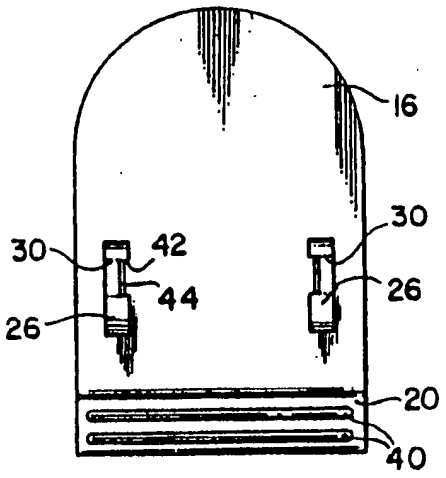


FIG. 10

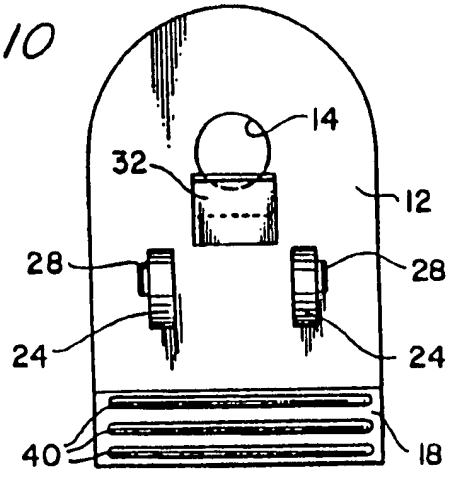


FIG. 11

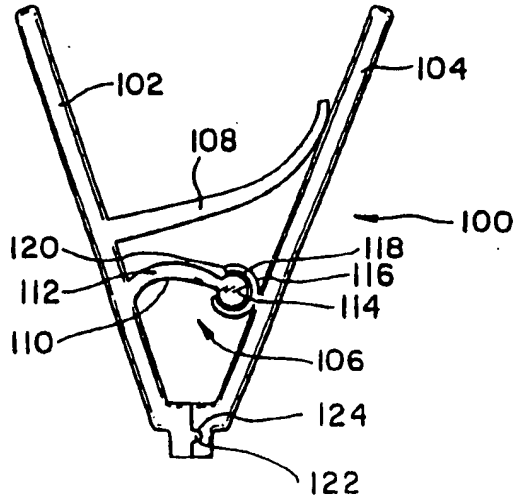

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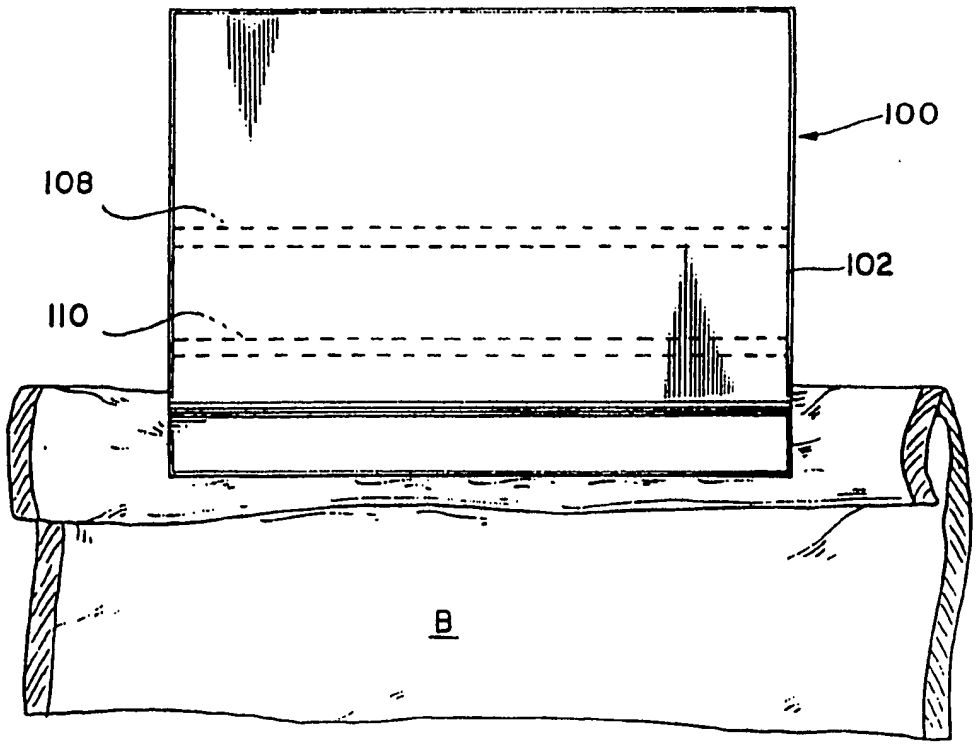
FIG. 12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B

SPRING BIASED CLIP AND METHOD OF MAKING

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part application of Ser. No. 07/587,029, filed Sep. 24, 1990, now U.S. Pat. No. 5,079,808.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is directed to a spring biased clip. More specifically, the clip according to the present invention comprises a pair of clamping elements having interfitting components defining a hinge in combination with a spring, preferably a cantilever spring. The clip according to the present invention can take the form of a bag clip or paper clip.

2. Background of the Invention

There presently exists many varieties of bag and paper clips commercially available and in use today. However, these clips can be expensive and complex to manufacture. Specifically, there exists a need for an improved bag clip.

With respect to paper clips, by far the most highly successful clip has been the conventional bent wire paper clip. This clip has dominated the field for many years. However, this clip is not very useful for securing thick documents nor would serve as an effective bag clip. Specifically, this clip can only accommodate documents having up to approximately twenty (20) sheets due to the limitation on the amount of bending the inner wire loop can sustain at its base prior to permanent plastic deformation of the wire section located at the base.

In order to accommodate thicker documents, the conventional wire paper clip must be somewhat reformed by the fingers of the user, resulting in a clip with inadequate biasing force. The deficiency of the use of the modified conventional paper clip is further exasperated, since thicker documents require a clip with greater biasing force due to the tendency of inner sheets to slip due to an insufficient average biasing force between sheets.

Variations of the wire paper clip have from time to time been introduced, however, never gaining wide acceptance in the marketplace. Recently, a new paper clip has been introduced that is essentially a thin plate of spring steel bent into a U-shaped cross section that has gained some market share in Japan and is now on sale in the United States. In operation, the plate portions of this clip are separated apart and then the clip is slid over the document to be secured.

Another conventional clip available is designed for handling thick documents. This clip is similar to the above-described clip except edge portions of the plates forming the clip are provided with bent wire actuators. The bent wire actuators can be pivoted from one position, during use of the clip, to a clip removal position where the bent wire portions use the body of the clip itself as fulcrums for separating the plate edges by pressing the free ends of the bent wire actuators together for removing the clip. This clip is constructed of all metal, and requires a number of separate components and bending manufacturing steps of the spring steel plate and the bent wire actuators increasing the costs of manufacturing.

However, this clip is not very useful with relatively thin documents. For example, the all metal construction of this clip results in a heavy clip, which tends to bend the edge downwardly at the portion of the document to which it is applied making handling of the document during reading sometimes difficult. Further, the bulky construction of this clip tends to interfere with the fingers of the user reading the document and creates a problem when stacking or shipping a document. More specifically, this type of clip has a greater dimensional thickness than the document due to its design preventing plural documents to be stacked flatly one on top of each other, or protrudes through the side of an envelope in which it is being shipped.

SUMMARY OF THE INVENTION

An object of the present invention is to provide an improved spring biased clip.

Another object of the present invention is to provide a spring biased clip comprising two clamping elements hingedly connected together by interconnecting components of the clamping elements in combination with a spring, preferably a cantilever spring.

A further object of the present invention is to provide a spring biased clip comprising two clamping elements hingedly connected together by interconnecting components of the clamping elements.

An even further object of the present invention is to provide a spring biased clip comprising two clamping elements hingedly connected together by interconnecting components of the clamping elements, one interfitting component being defined by a male interfitting portion and the other interfitting component being defined by a female interfitting portion.

A still further object of the present invention is to provide a spring biased clip comprising two plate elements hingedly connected together by interconnecting components of the clamping elements, one interfitting component being defined by a male portion and the other interfitting component being defined by a female portion, the interfitting components cooperating together as a snap fitting.

An even still further object of the present invention is to provide a spring biased clip comprising two clamping elements hingedly connected together by interconnecting components of the clamping elements, the clamping elements having a substantially constant cross-section.

The spring biased clip according to the present invention overcomes a number of problems mentioned above with respect to conventional clips. The two piece hingedly connected construction of the clip according to the present invention allows the clip to adequately handle a wide range of document thickness. Further, the clip according to the present invention utilizes a unique construction and spring, which results in greater biasing force for documents of increasing thickness. Thus, the varying spring biasing force correlates with the actual spring biasing force required to control and maintain the sheets properly biased together to prevent individual page slippage no matter what the document thickness.

Very importantly, the construction of the spring biased clip according to the present invention lends itself to high speed and economic manufacturing and assembly. Since the clip can be made of plastic, the separate clamping elements can be injection molded with accom-

modating interconnecting portions and biasing spring. The spring of the clip is preferably a cantilever type spring, which can be molded extending from the inner surface of one or both clamping elements. The free end of the cantilever spring engages and cooperates with an inner surface of the opposite clamping element during operation. More specifically, the outer free end surface portion of the cantilever spring has a certain amount of curvature and engages with the inner surface of the opposite clamping element. This construction allows the cantilever spring to develop a greater biasing force due to the decreasing length of the moment arm from the base of the spring to the point of contact with the opposite clamping element.

An embodiment of the spring biased clip according to the present invention includes a pair of clamping elements having a substantially constant side cross section. Specifically, the clamping elements have a substantially uniform cross section in size and shape along the length of each clamping element. For example, the clamping elements can be machined from stock material, or preferably, can be extruded to the desired shape and size and then cut to length.

This embodiment includes a pivot arrangement for hingedly connecting the clamping elements together in combination with a spring. The spring can be provided in a number of forms including leaf and coil springs, however, a cantilever leaf spring is preferred. Preferably, the pivot and spring is formed as integral members of one or both clamping elements. For example, a cantilever spring and male/female hinge connection can be simultaneous formed by extruding the same with one or both clamping elements.

Further, the spring and hinge can be extruded to be the full length of the clamping elements to produce a stock material that can be cut to length and then assembled, or can be extruded to be a portion or portions (i.e. multiple springs or hinge portions) of the length.

The hinge connection in this embodiment is preferably in the form of a snap connection, or a connection that is simple to assembly. For example, a male and female snap connections arrangement provides a snap connection that allows the clamping elements to be easily joined by forcibly translating the element together with a sufficient force to engage the male/female portions of the snap connection. In a preferred embodiment, the clamping elements are extruded with one clamping element having a cantilever spring in combination with a male portion and the other clamping element having a female portion. Since the clamping elements are extruded, the male portions is in the form of an elongated member to be received within a female groove in the other clamping member.

The spring biased clip according to the present invention is for uses including a bag clip and paper clip. The bag clip can be used for sealing the edges of an opened plastic snack bag, for example. Typically, the upper portion of the plastic bag that is opened is folded over a couple of times and then the clip is applied to ensure a good air tight seal.

The clip according to the present invention in the format of a paper clip can accommodate various width plural sheet documents ranging from a couple of sheets to tens of sheets. The paper clip according to the present invention provides adequate biasing force in any range of typical document thickness.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an embodiment of the spring biased clip according to the present invention;

FIG. 2 is a front view of the spring biased clip according to the present invention;

FIG. 3 is a back view of the spring biased clip shown in FIG. 1

FIG. 4 is a side view of the spring biased clip shown in FIG. 1;

FIG. 5 is an opposite side view of the spring biased clip shown in FIG. 4;

FIG. 6 is a top view of the spring biased clip shown in FIG. 1;

FIG. 7 is a bottom view of the paper clip shown in FIG. 1;

FIG. 8 is a partial side view of one of the plate elements with the closest lug partially removed to view the details of the inner surface of the other outer lug;

FIG. 9 is a view of the inner surface of one plate element showing the details of the outer lugs having holes therein.

FIG. 10 is a view of the inner surface of the opposite plate element showing the details of the inner lugs having outwardly extending bosses;

FIG. 11 is a side view of another embodiment of the clip according to the present invention; and

FIG. 12 is a front view of the embodiment shown in FIG. 11 clamped onto the top of a previously opened plastic snack food bag.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

A spring biased clip according to the present invention is shown in FIG. 1. The spring biased clip 10 comprises a first (clamping) plate element 12 having a thumb hole 14. The plate element 12 is pivotally or hingedly connected to a second (clamping) plate element 16. Optionally, one or both plate elements 12,16 can be provided with an additional through hole for hanging the paper clip, for example on a wall nail during use. The plate elements 12,16 are provided with clamping edges 18,20 to concentrate the application of force against the sheets of the document being clamped together.

FIGS. 2 and 3 show front and rear views of the spring biased clip 10. The plate portions may display core hole indents 22 resulting from a plastic injection molding process to form the hinge structure of the plate elements 12,16 in an integral manner.

FIGS. 4 and 5 show opposite side views of the spring biased clip 10. The plate element 12 is provided with a pair of inner hinge lugs 24. The plate element 16 is provided with a pair of outer hinge lugs 26, as shown in FIG. 6. The inner hinge lugs 24 are provided with outwardly extending bosses 28, which bosses are received or accommodated in through holes 30 in the outer hinge lugs 26 defining the hinge structure of the clip 10.

The plate portion 12 is provided with a cantilever mounted spring 32 projecting form its inner surface. The free end 34 of the spring 32 engages and cooperates with the inner surface of the plate element 16. More specifically, an outer curved surface portion 36 at or near the free end 34 of the spring 32 engages with the inner surface of plate element 16 to constantly spring bias the plates 12,16 apart. The spring 32 can be molded as an integral unit of the plate element 12 all made of plastic. Thus, the base portion 38 of the spring 32 is

securely and rigidly fastened with the plate portion 12 and extends from the inner surface thereof.

Alternatively, separate cantilever springs can be provided extending from the inner surface of both plate elements 12,16 with each spring being one-half or less the width of the spring biased clip. In further alternative embodiments, a plurality of cantilever springs can extend from the inner surface of one or both plate elements 12,16 to vary the clamping power and uniformity of the clip.

During manufacture of the spring biased clip 10, the cantilever spring 32 can be molded so as to extend straight at an approximate ninety (90) degree angle from the inner surface of the plate element 12. During assembly of the plate elements 12,16 together, the cantilever spring 32 is bent in the curved shape, shown in FIGS. 4 and 5. Alternatively, the spring 12 can be molded with some initial curvature to facilitate assembly.

The cantilever spring 32 having curvature in at least the assembled spring biased clip configuration and mounted between the plate elements 12,16 provides a unique feature of the spring biased clip 10. As portions of the plate elements 12,16 above the hinge axis are pressed together, for example between a user's thumb and index finger, the lower portions of the plate elements below the hinge axis open apart to accommodate the item to be clamped such as a document.

As the upper portions of the plate elements 12,16 above the hinge axis are moved together, the spring 32 produces an increasing spring biasing force between the upper portions of these plate elements. The increasing biasing force is a result of the decreasing length of the moment arm, the length of which being defined between the base of the spring 32 to the point of contact with the spring with the inner surface of the plate portion 16. Further, the increasing curvature of the spring also produces local increasing biasing force based on the strength of materials formulations and concepts.

This particular feature results in a practical advantage in that the spring biased clip of the present invention provides a greater biasing force between the clamping edges 18,20 with increasing document thickness. The thicker the document, the greater the clamping force that is provided to prevent sheet slippage between various sheets and subsets of sheets. A greater clamping force is required due to the greater number of surface-to-surface interfaces each requiring a certain average clamping force to provide a sufficient surface frictional force between sheet surface interfaces to prevent slippage.

The inner surfaces of the clamping edge portions 18,20 can be provided with force concentration projections such as ridges 40, or pointed nodes to aid in the prevention of sheet slippage of a document. Various shapes, sizes, number of projections and material composition can be selected and tailored to a particular application such as for clamping bond paper documents verses hard manilla type sheets.

FIG. 8 is a partial side view of the plate element 16 with the closest outer hinge lug 26 partially removed to view the inner detail of the other outer hinge lug 26. Each outer hinge lug 26 is molded with a groove 42 and a ramp section 44 to facilitate the assembly of the paper clip 10. More specifically, the ramp section 44 of each outer hinge lug 26 engages with the outer tip of the boss 28 of each inner hinge lug 24 to guide the bosses 28 through the grooves 42 and into the through hole 30 of each outer hinge lug 26. Once the bosses 28 clear past the sliding surfaces of the grooves (i.e. bottoms of grooves), the bosses then snap into the through holes 3 to complete the assembly.

In an alternative assembly, the spring biased clip can be constructed to include some or all metal components. For example, spring steel strips can be stamped and bent to provide the cantilever spring extending from one plate element and hinge structure. Rivets can be used to rivet the lugs together forming the hinge structure.

Another embodiment of the spring biased clip 100 according to the present invention is shown in FIG. 10. The clip 100 comprises clamping elements 102,104 hingedly connected together by hinge 106 in combination with a cantilever spring 108.

The hinge 106 comprises male portion 110 defined by a protrusion 112 extending from the rear of clamping element 102, and a male end 114 positioned at the end of protrusion 112. The hinge 106 further comprises a female portion 116 defined by a socket 118 extending from the rear of clamping element 104. The end 114 of the male portion 110 is received within the socket 118 of the female portion 116.

The hinge 106 is designed to connect the clamping elements 102,104 together during storage and operation of the clamp. However, the clamping elements could be stored disassembled. The hinge is preferably of a snap connection design in order to allow easy and quick assembly of the clamping elements. The male and female snap connections arrangement shown in FIG. 10 is the preferred snap connection arrangement that can be successfully used in this embodiment, however, other snap connection arrangements can be substituted.

In the male and female snap connections arrangement shown in FIG. 10, the protrusion 112 an end 114 of the male portion 110 form an elongated extension in the direction of extrusion. Likewise, the socket 118 of the female portion 116 forms an elongated receiving slot in the direction of extrusion. Thus, the extruded base material can be simply extruded to any length, depending on the application such as various widths plastic bags to be clamped, and then cut to the appropriate length and assembled.

The outer diameter of the male end 114 is substantially the same as the inner diameter of the socket 118. Further, the opening 120 into the socket 118 is selected to allow the male end 114 to forcibly pass through the opening 120 during assembly of the snap connection. Specifically, the dimensions of the opening are selected so that the male end 114 resiliently biases the portions of the sockets immediately positioned at the opening 120 apart to allow insertion of the male end 114 into the socket 118. Further the opening 120 is sufficiently wide to allow angular rotating of the male end 114 supported by protrusion 112 during pinching the clamp open to allow adequate pivoting.

I claim:

1. A spring biased clip, comprising:

a first clamping element having a clamping edge, said first clamping element made from a length of stock material having a substantially constant cross section;

a second clamping element having a clamping edge, said second clamping element made from a length of stock material having a substantially constant cross section;

a hinge connecting said clamping elements together, said hinge comprising a male and female snap connections arrangement; and

a spring associated with the clip for biasing said clamping edges of said plate elements together, said spring defined by an integral leaf type tapered member which initially extends generally perpendicular from one of said clamping elements and in an assembled condition of the clip extends outwardly to a free end and towards the other opposite clamping element to slidably contact same along an arcuate end portion of said spring so that the clamping force of said spring will increase as said clamping edges are moved away from each other so that the clip will exert greater force on a thicker article than a thinner article.

2. A clip according to claim 1, wherein said hinge comprises an elongated protrusion having a substantially round cross section first portion extending from an inner surface of one clamping element, and another protrusion having a substantially round cross section concave portion receiving said first portion extending from an inner surface of the other clamping element defining said hinge.

3. A clip according to claim 1, wherein said stock materials are extruded.

4. A clip according to claim 1, wherein said clamping elements include interconnecting portions defining a hinge between said clamping elements.

5. A clip according to claim 4, wherein said interconnecting portions have substantially constant cross sections.

6. A clip according to claim 5, wherein said interconnecting portions are male and female connectors.

7. A clip according to claim 6, wherein said male and female connectors define an elongated element and an elongated receiving slot hinge.

8. A clip according to claim 1, wherein said spring is a cantilever spring extending from an inner side of one of said plate elements.

9. A clip according to claim 8, wherein said cantilever spring has a substantially constant cross section.

10. A device according to claim 1, wherein said spring is defined by a curved tapered cantilever spring extending from one clamping element and extending between said clamping elements, said cantilever spring having a base portion connected to the one clamping element and being thicker than a free end portion thereof, said free end portion of said cantilever spring including an outer curved surface portion slidably engaging with the other clamping element for biasing portions of said clamping elements apart while biasing said clamping edges together about said hinge.

11. A spring biased clip, comprising:

a first clamping element having a clamping edge, said first clamping element provided with a first interfitting portion, said first clamping element made from a length of stock material having a substantially constant cross section;

a second clamping element having a clamping edge, said second clamping element provided with a second interfitting portion cooperating with said first interfitting portion defining a male and female snap connection for hingedly connecting said clamping elements together, said second clamping element made from a length of stock material having a substantially constant cross section; and

a cantilever spring associated with the clip for biasing said clamping edges of said clamping elements together, said spring defined by an integral leaf type tapered member which initially extends generally perpendicular from one of said clamping elements and in an assembled condition of the clip extends outwardly to a free end and towards the other opposite clamping element to slidably contact same along an arcuate end portion of said spring so that the clamping force of said spring will increase as said clamping edges are moved away from each other so that the clip will exert greater force on a thicker article than a thinner article.

12. A spring according to claim 11, wherein said snap connection is defined by a male and female connections hinge.

13. A clip according to claim 12, wherein said male and female connections hinge comprises an elongated protrusion having a substantially round cross section first portion extending from an inner surface of one clamping element, and another elongated protrusion having a substantially round cross section concave portion receiving said first portion extending from an inner surface of the other clamping element defining said hinge.

14. A clip according to claim 11, wherein said cantilever spring protrudes from an inner side of one plate element and said interfitting portions of said clamping elements are male and female connectors.

15. A clip according to claim 14, wherein said male connector extends from the inner side of one clamping element and said cantilever spring extends from the inner side of the same clamping element.

16. A clip according to claim 15, wherein said male and female connectors are positioned between said cantilever spring and said clamping edges of said clamping elements.

17. A clip according to claim 14, wherein said male and female connectors are positioned between said cantilever spring and said clamping edges of said clamping elements.

18. A device according to claim 11, wherein said cantilever spring is defined by a curved tapered cantilever spring extending from one clamping element and extending between said clamping elements, said cantilever spring having a base portion connected to the one clamping element and being thicker than a free end portion thereof, said free end portion of said cantilever spring including an outer curved surface portion slidably engaging with the other clamping element for biasing portions of said clamping elements apart while biasing said clamping edges together about said hinge.

* * * * *

United States Patent [19]

Server Perez

[11] **Patent Number: 4,989,889**

[45] **Date of Patent: Feb. 5, 1991**

[54] FOLDABLE CHART FOR SHOPPING

[76] Inventor: **Juan Server Perez**, C.N. 332, Km. 164, 03750 Pedreguer, Spain

[21] Appl. No.: **295,747**

[22] Filed: **Jan. 10, 1989**

[30] **Foreign Application Priority Data**

Jun. 28, 1988 [ES] Spain 8802023

[51] **Int. Cl.**[5] **B62B 1/12**

[52] **U.S. Cl.** **280/40**; 280/655; 280/47.29; 280/DIG. 3

[58] **Field of Search** ..... 280/654, 655, 40, 638, 280/38, 646, 652, 47.29, 47.28, DIG. 3

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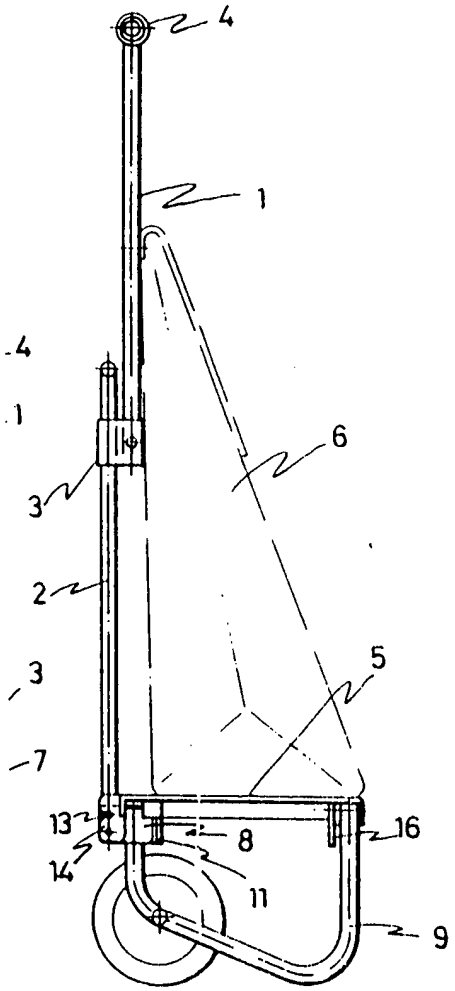
Primary Examiner—David M. Mitchell
Attorney, Agent, or Firm—Darby & Darby

[57] **ABSTRACT**

Foldable cart for shopping having a rigid base for reinforcement of the bag bottom. Two frames carry the wheels on which the bag leans in the unfolded position during use. The frames allow the wheels to be folded beneath the rigid base. Bag supporting frameworks can be extended and folded by parallel sliding in order to allow extension for pulling the cart or folding to a bag of reduced size for hand transport. One of the frameworks is attached to the upper zone of the bag, pulling the latter for its extension or folding. The other framework has, close to an articulation axle at the rigid base of the bag, a piece provided with one or two lugs which pass through slots formed in the housing for articulation of the frameworks and the wheel frames and for automatic extension of the wheels.

7 Claims, 10 Drawing Sheets



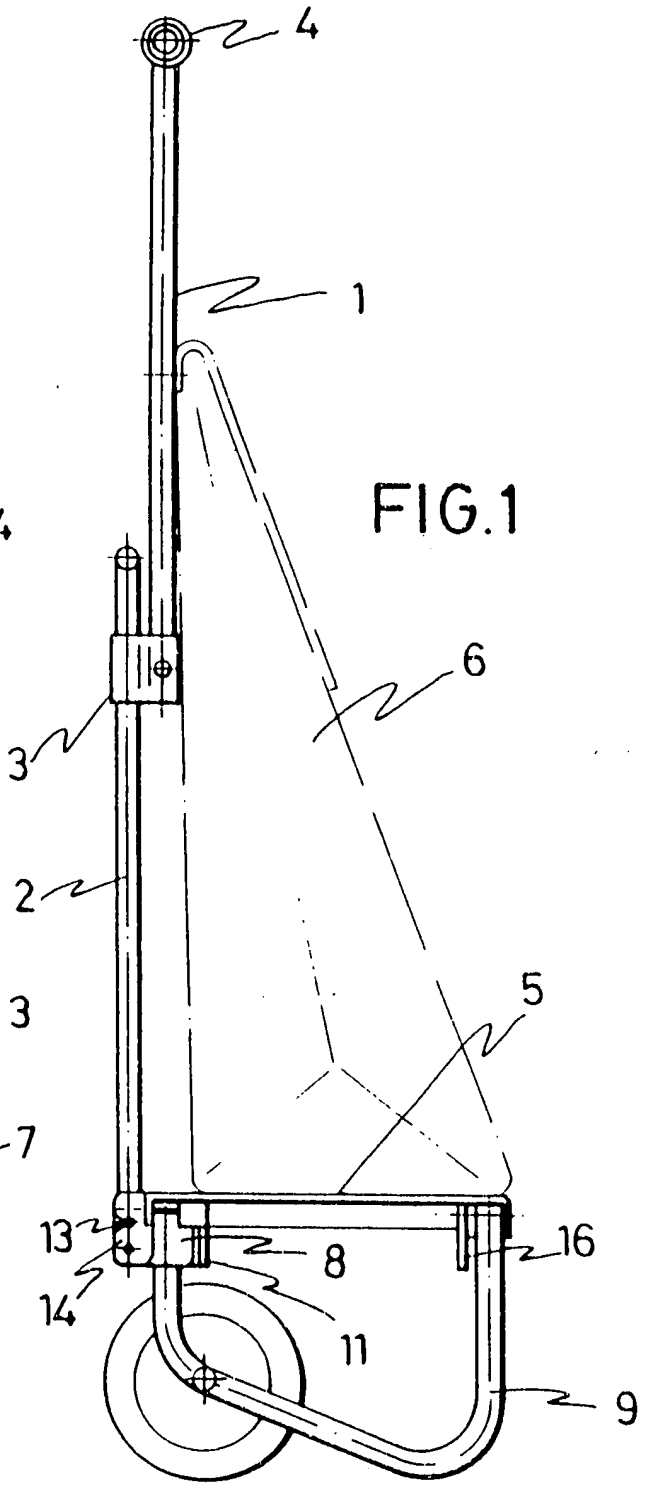


FIG.1

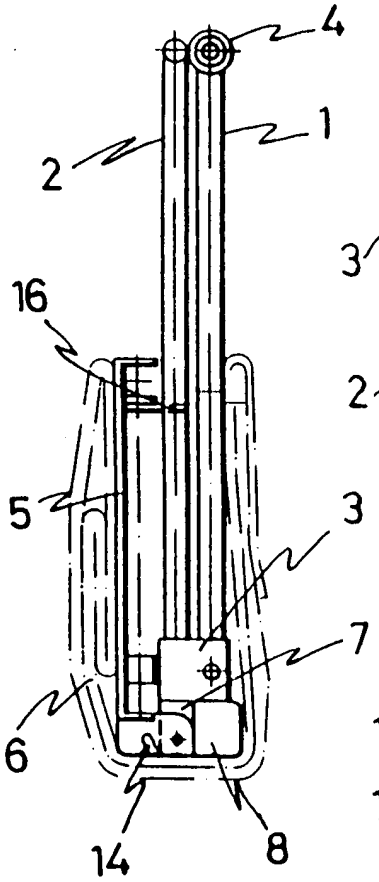


FIG.2

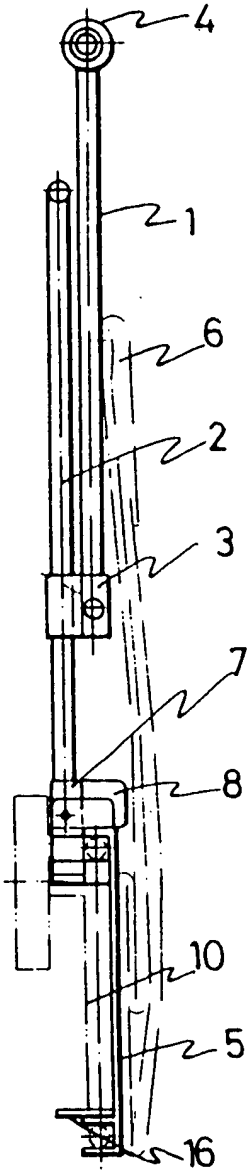


FIG.3

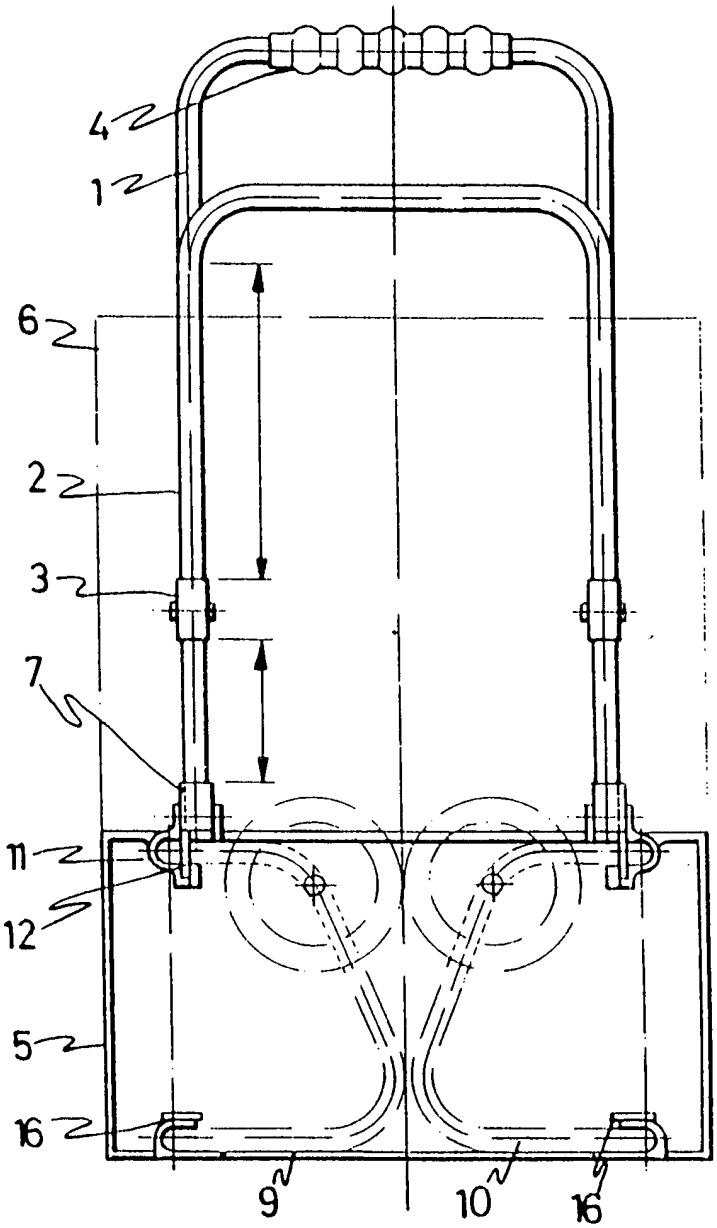


FIG.4

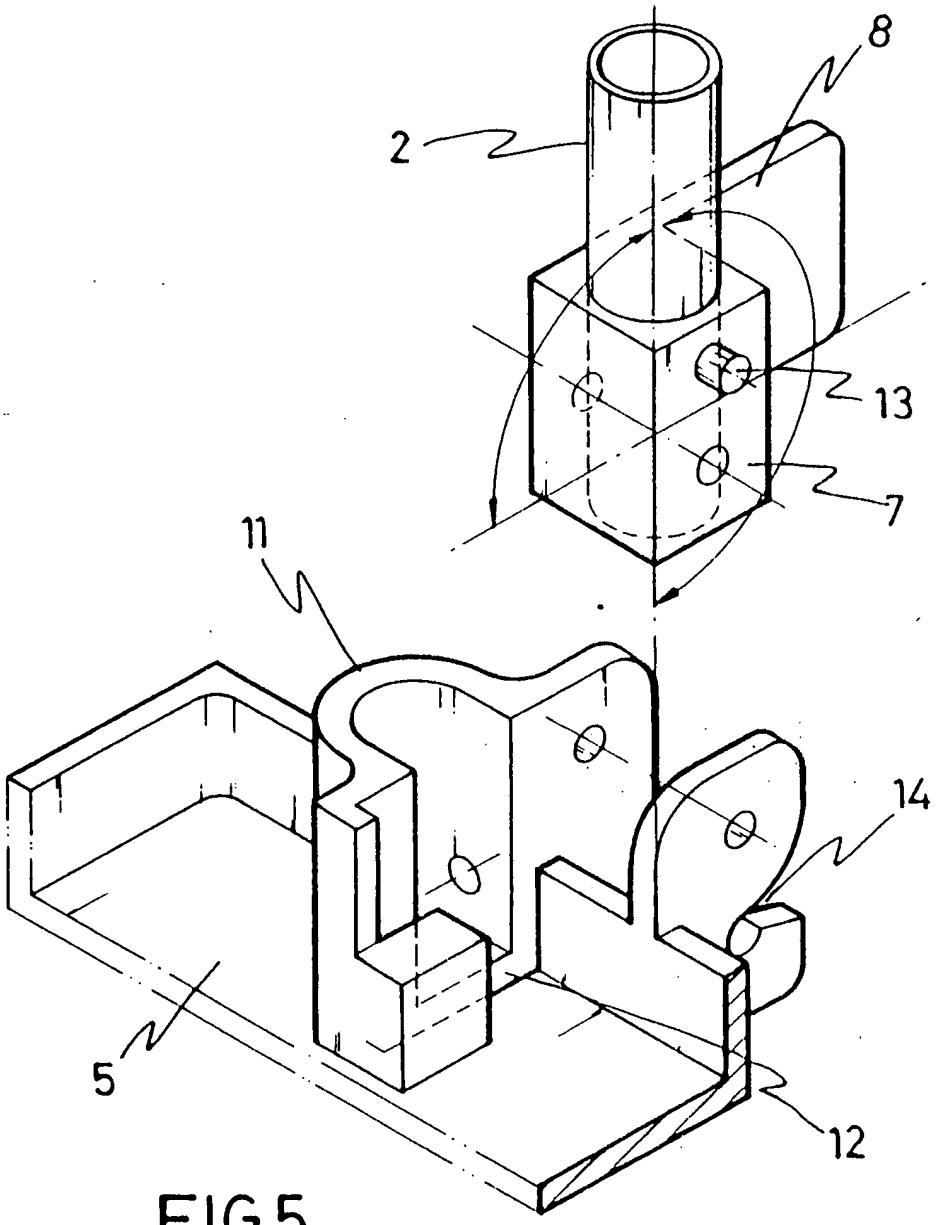


FIG.5

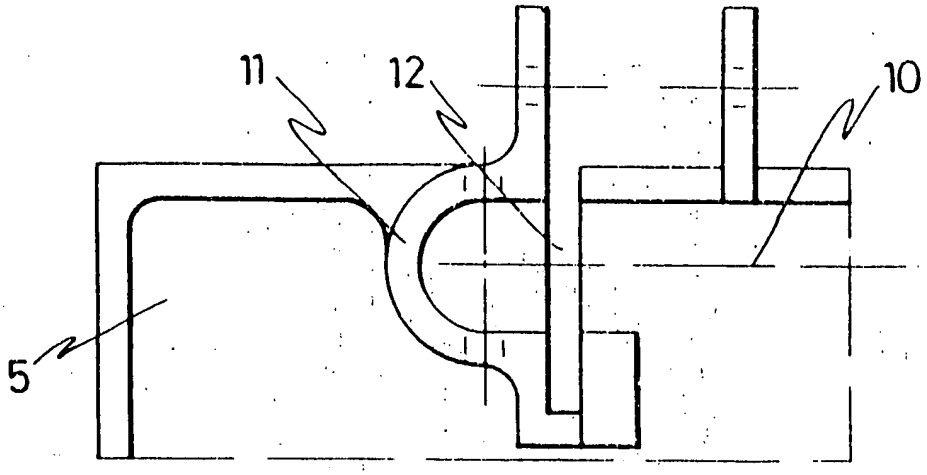


FIG.6

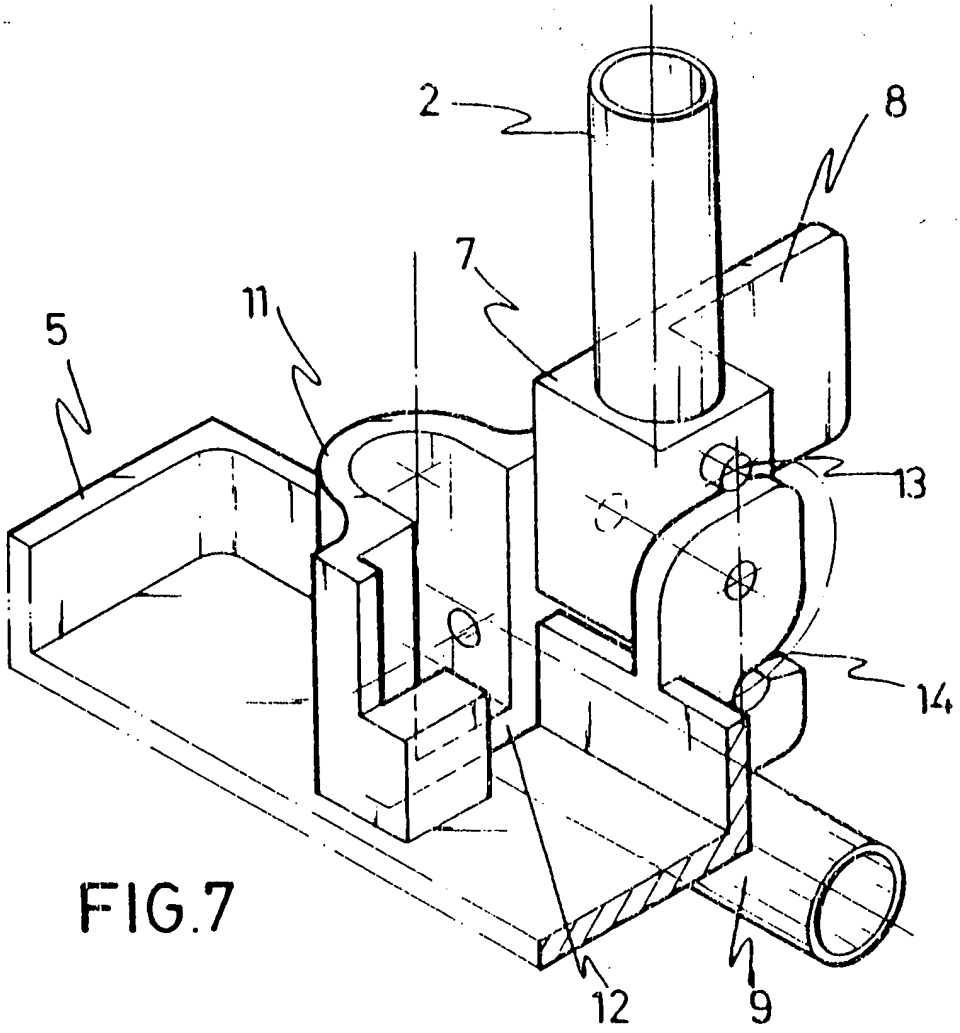


FIG.7

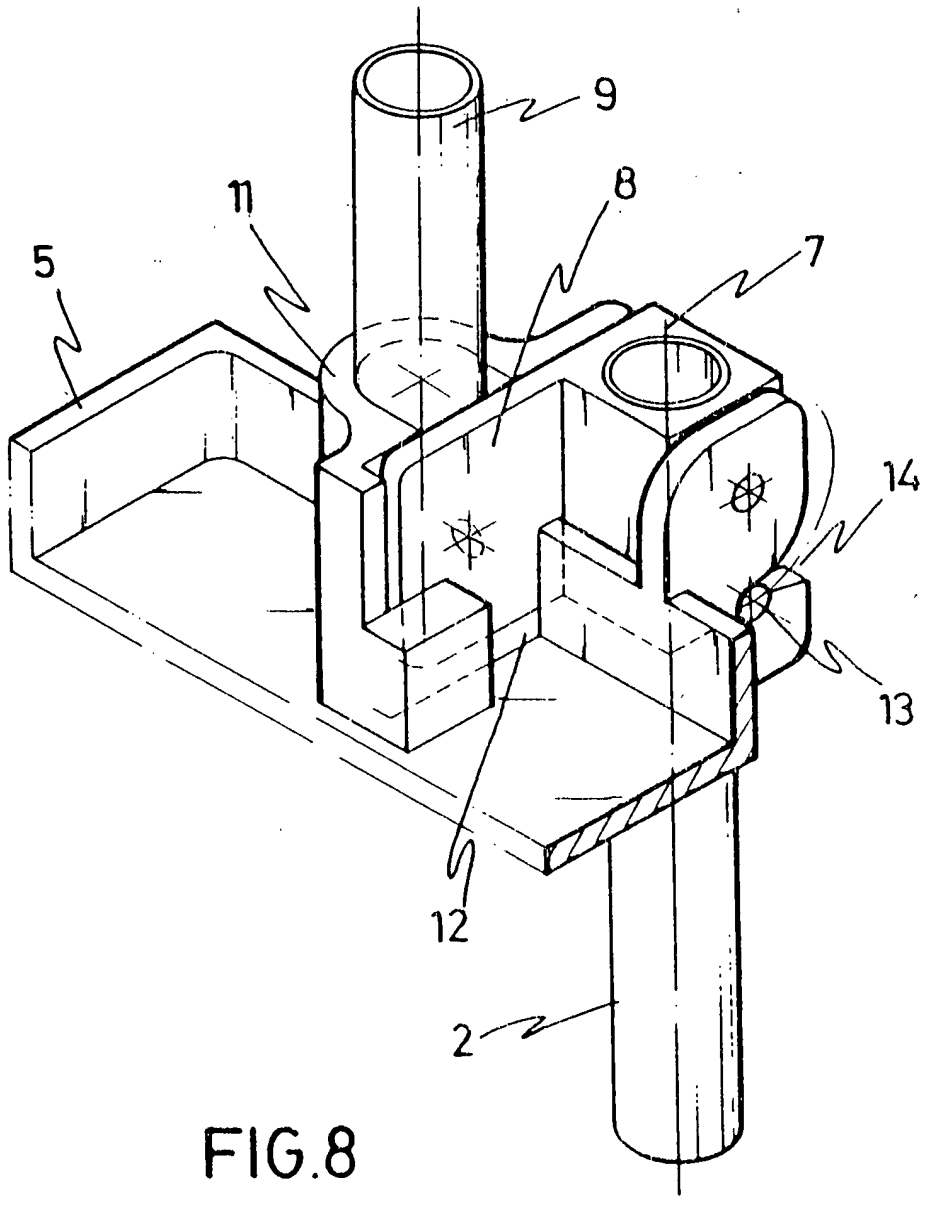


FIG.8

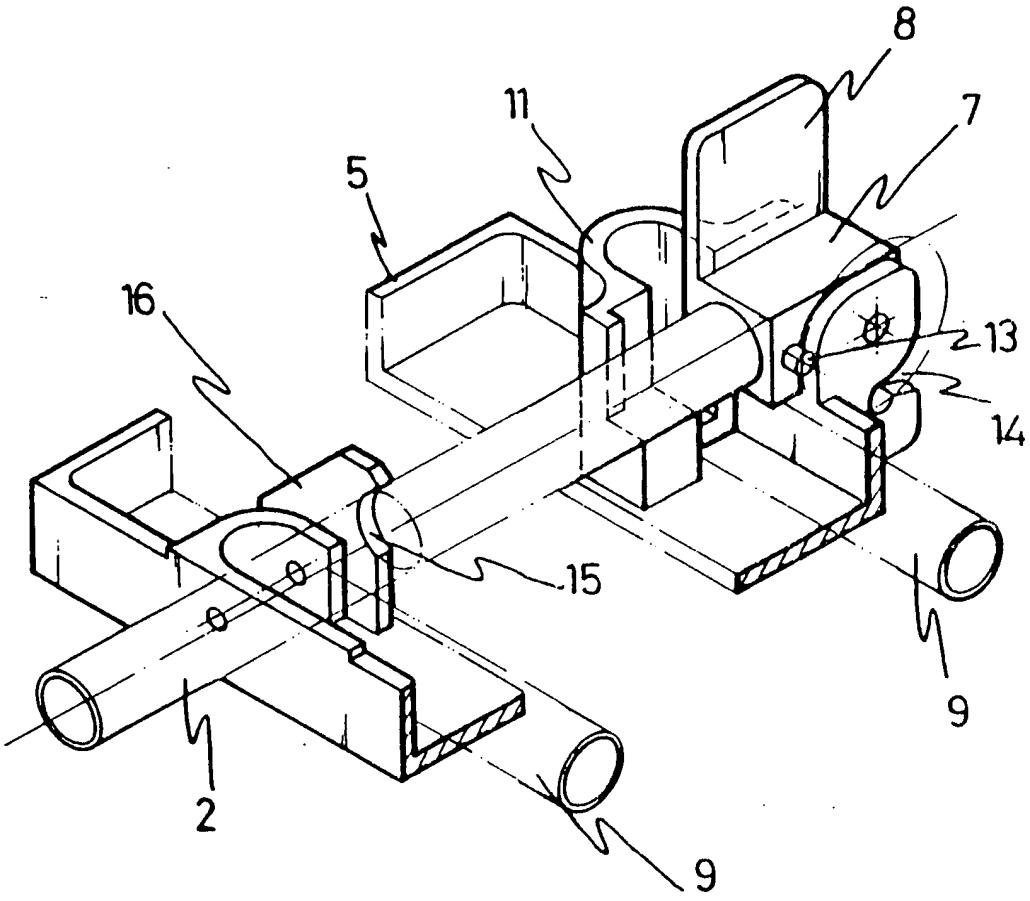


FIG.9

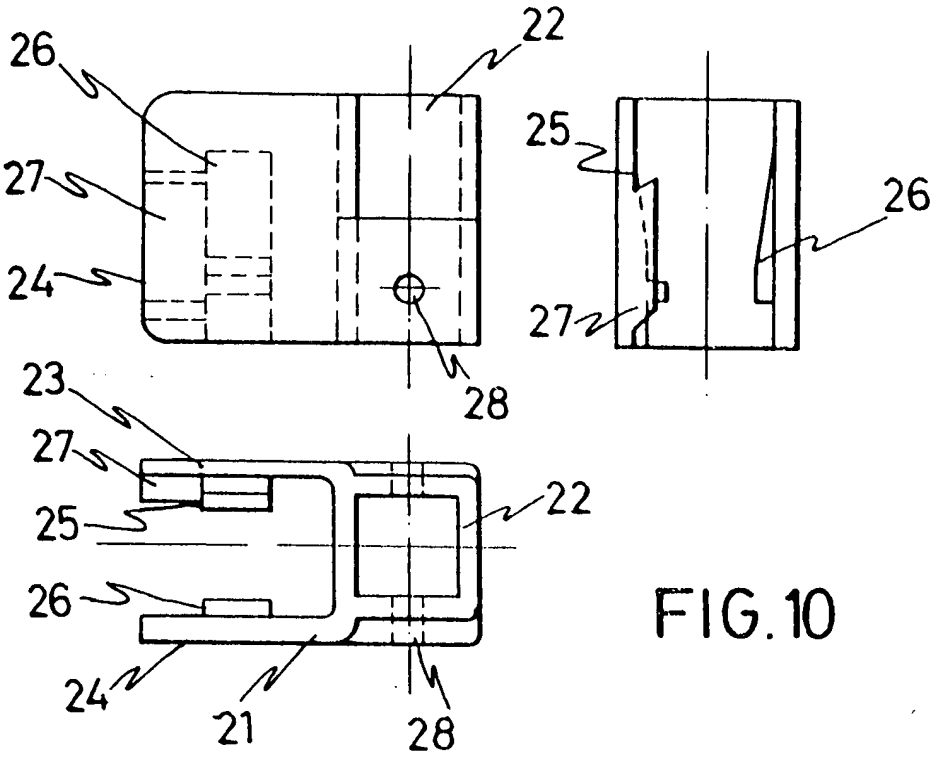


FIG. 10

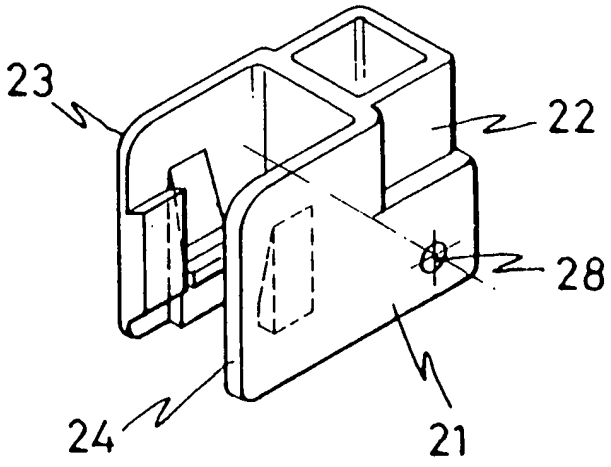


FIG. 11

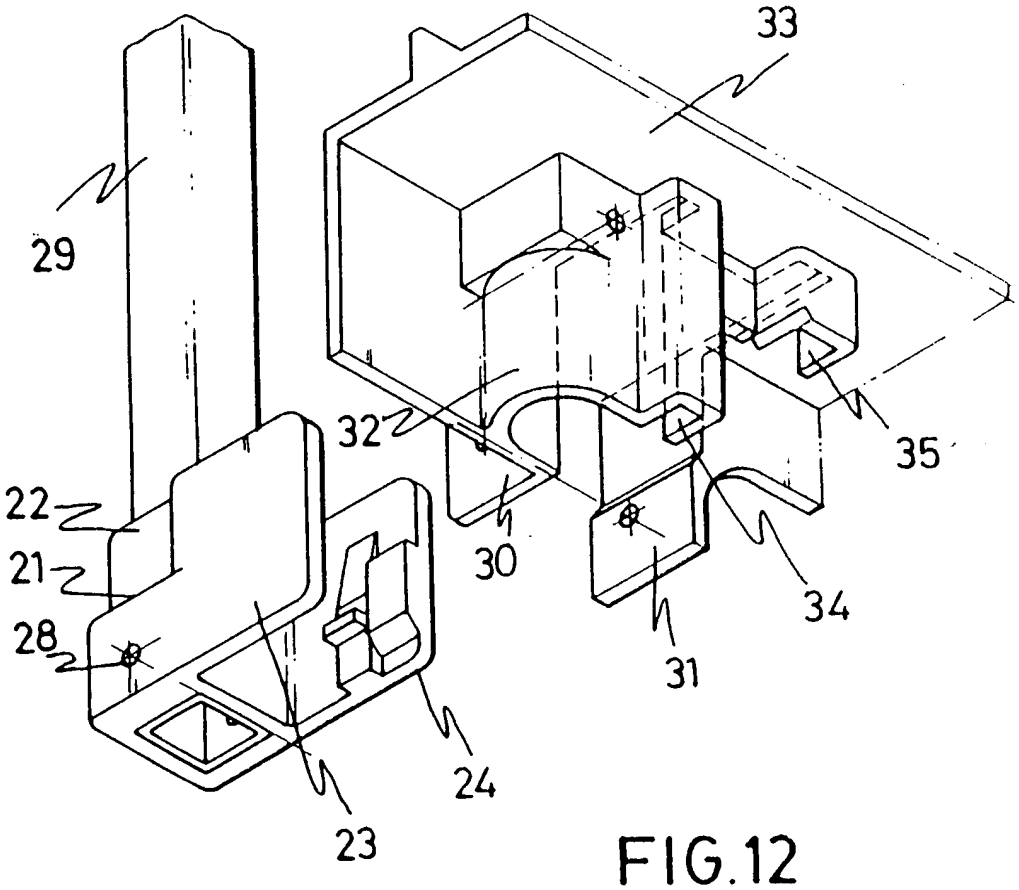


FIG.12

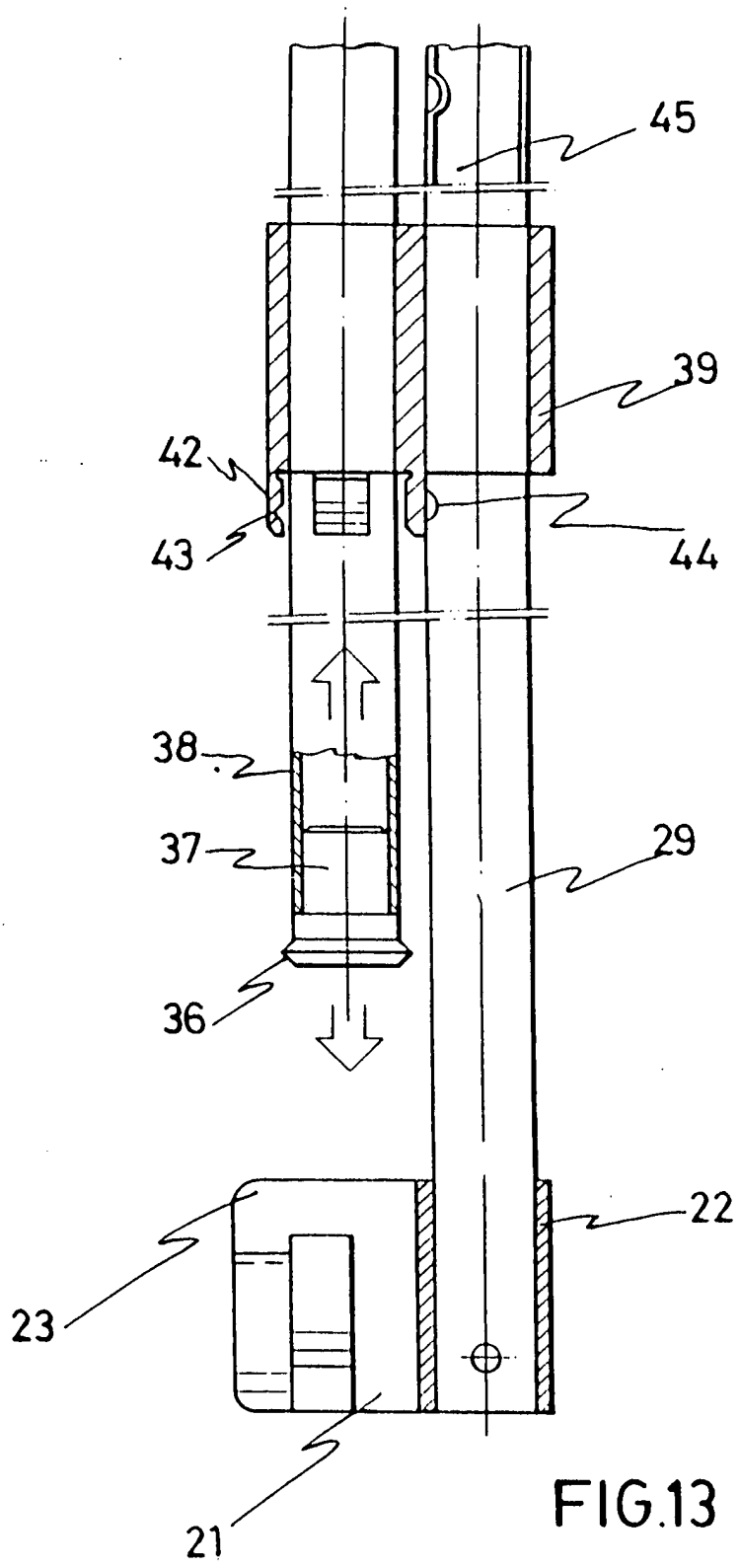


FIG.13

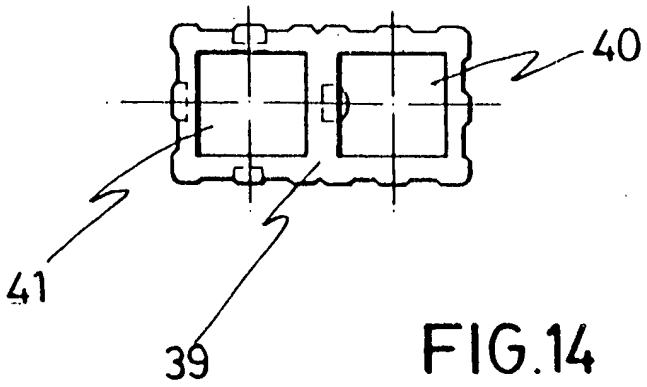


FIG.14

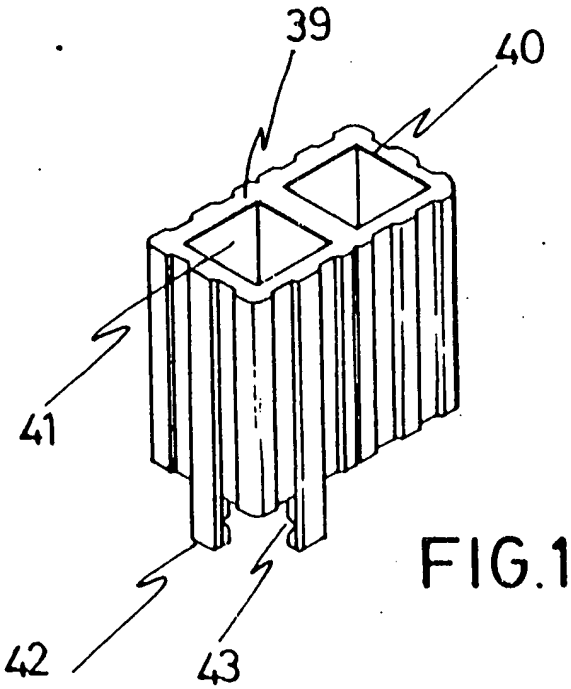


FIG.15

FOLDABLE CART FOR SHOPPING

The oresent invention relates to a foldable cart for shopping, of the type having a wheeled framework to which the bottom of the bag is attached. The framework allows the wheels to be folded under the base, and the bag-framework assembly can be folded until forming a bag which is held by a part of the framework with which the cart is pulled in the unfolded position.

In the prior art, the wheels of the cart are welded to corresponding frameworks, articulated to a resistant base situated beneath the bottom of the bag, the frameworks being folded.

In some cases, the bag handle is a double handle, formed by two "U"-tubes being parallelly displaced, which are extended only when the bag is pulled on its fixed wheels and are withdrawn in order to carry the bag hanging on the hand or on the arm of the user. These cases provide non-foldable bag.

Different types of frameworks allow their folding, together with the bag and the wheels, in order to convert the assembly into a bag of reduced size to be carried hanging on the user's arm until the moment when shopping is done, at which time the wheels are extended and unfolded so that the loaded bag leans on the wheels to make transport easier.

The object of the invention is to provide a foldable shopping cart of the type which can be converted into a bag of reduced size, wherein the bag and the wheels are automatically unfolded when one proceeds to extend both frameworks of the cart.

With this aim, one of the frameworks has been provided with points of junction over the top portion of the bag and the other framework is attached to the resistant plate which supports the bottom of the bag. They are retained in this unfolded position until it is desired to reduce the height of the seizing frameworks to fold the bag and the resistant base. At the side opposite that where the seizing frameworks are articulated, the base is provided with two plates with notches for fitting under pressure against the frameworks when the cart is folded.

At the parallel sleeves which are crossed by the seizing frameworks for their extension and folding, retaining means are provided to avoid untimely folding.

In a preferred embodiment of the invention, the retention means for maintaining the bag both in the folded and in the unfolded postions, can be improved to allow folding and unfolding without great effort while being sufficient to maintain the bag in its selected position.

In this regard, the piece disposed at the lower end of one of the seizing frameworks has a second lug, parallel to the first lug and having a higher flexibility index than the first lug so that, while the latter carries out the unfolding of the frameworks, the former fits in the working position of the resistant base. The latter is provided with two wide paths whereinto the ends of said framework articulate, so that the second lug passes through a guiding space, touching one of the walls and being sufficiently away from the opposite wall to provide the necessary room for the lateral movement of said lug. The lug is provided, at the surface that touches said wall, with a step which acts as an anchoring means on the upper edge of said path.

Double tubular parallel sleeves are provided with a quadrangular passage of the same section as the sliding frameworks, thereby being able to eliminate lateral movements.

One of the sockets of the double socket is provided with axial projections, coincident with each face, having inner notches, and provided with flexibility. A peripheral web of a ferrule provided at the end of the frame which is not attached to the resistant base engages the notches in the extended (unfolded) position of the parallel frameworks. This peripheral web constitutes the means by which the resistant base disengages the retaining lug from its penetration between the two lugs with which the terminal or prismatic piece that relates it to the other frame is provided.

For a better comprehension of the above description, the present specification has nine sheets of drawings attached thereto, showing the cart assembly in the extended (unfolded) and folded positions, as well as details of the elements by which the extension and folding are attained.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of the framework and the bag in the unfolded position.

FIG. 2 is a side view of the cart completely folded.

FIG. 3 is a side elevational view at the beginning of the folding operation.

FIG. 4 is a front elevational view at the beginning of the folding operation or of the extension operation, showing the cart in an intermediate position.

FIG. 5 Is a perspestive exploded view of the resistant base of the bag, from beneath, showing the prismatic piece whereto the wheel frameworks are articulated, as well as the inner piece of the framework.

FIG. 6 is a plan view of the prismatic piece which forms part of the resistant base of the bag.

FIG. 7 is the same perspective view as in FIG. 5, wherein the lower piece of the framework is engaged in its articulation point, the lower piece and the framework carrying it being seen in a partial unfolded position. The wheel frame is folded in the resting position.

FIG. 8 is perspective view from the lower face, wherein the frame is unfolded and the lug of the lower piece has forced the wheel framework to be in the rolling position.

FIG. 9 is a perspective view from beneath, wherein the frame and framework are folded. This position corresponds to the folding position, such as represented in FIG. 2.

FIG. 10 represents three views of the prismatic piece disposed at the lower ends of one of the seizing frameworks, according to a preferred embodiment.

FIG. 11 shows the perspective view of said prismatic piece according to FIG. 10

FIG. 12 shows the perspective view of the prismatic piece attached to the end of the framework, as well as the perspective view of the zone of the rigid base which forms the framework for the bottom of the bag, wherein the prismatic piece articulation lodging is located, according to FIG. 11.

FIG. 13 represents a side elevational view of the prismatic piece according to FIG. 10 attached to the framework, and the tubular socket that joins the frameworks, with their mutual fitting elements.

FIG. 14 is a plan view of the tubular socket according to FIG. 13.

FIG. 15 is a perspective view of the tubular socket.

The elements constituting the cart for shopping have been numerically referenced for identification purposes.

DESCRIPTION OF A PREFERRED EMBODIMENT

Thus, there are two frames 1 and 2, parallel to each other, in sliding engagement with each other, and attached to each other by double tubular sleeves 3 which are fixedly engaged to the frame 1. Frame 1 has a seizing handle 4. Frame 2 is attached at its lower part to the rigid base 5 supporting the bottom of the bag 6.

The frame 2 and the base 5 are joined to each other by piece 7, which is provided with a lug 8 which provides for extension of the wheel frameworks 9 and 10 and allows for the wheels to be folded over the lower face of the rigid base 5.

The piece 7 articulated to the rigid base 5 of the housing 11. Its lug 8, during the extending and folding movement of the cart, passes inside the zone 12 of the housing 11 in order to retain the wheel frameworks 9 and 10, respectively.

In the unfolded position (FIGS. 5 and 8), the pivot 13 of the piece 7 fits into the slot 14 of the housing 11 to provide the retaining element for the assembly.

In the folded position (FIG. 9) , the frame 2 fits into the notch 15 of the piece 16.

By means of the herein described elements, the wheel frameworks can be automatically unfolded by merely displacing the frames 1 and 2 by extending one of the frames.

It has been foreseen that the unfolded position of the frames can be maintained by means of retention elements situated either at the sleeves or in the housing that articulates the frames to the resistant base at the bottom of the bag. In any case it is advisable to reinforce the retention system in the unfolded position. According to the most improved embodiment, as shown in FIGS. 10 to 15, it is understood that the improvements provided by the invention are located in the housing articulated to one of the frames and to the rigid base; in said rigid base and in the tubular socket that enables both seizing frameworks of frames to slide therebetween, and in the mechanism that fixes the positions of the frameworks and the socket.

In accordance with the invention, said quadrangular piece 21 has a tubular extension 22. Two sides of the tubular extension extend into parallel walls 23 and 24. Inside these walls, there are vertical opposing wedge-shaped embossings 25 and 26 and a quadrangular embossing 27, the base of which constitutes a stop. The anchoring axle, not represented, is made to pass through the drilling 28 that goes through the lower part of the guadrangular piece towards one of the seizing frameworks. The axle itself, mounted in the drilling 28, goes through the walls 30 and 31 of the housing 32 which is formed at an edge of the rigid base 33. The housing 32 forms two recesses 34 and 35, parallel to each other, for the passage of walls 23 and 24 of the quadrangular piece. The lug or wall 23 has a higher flexibility index, for which purpose it has a smaller thickness that the other wall 24. The projection inside the lug 23 is intended to engage the end of said wall in order to retain the framework and the bag in the unfolded position, when it is placed in its assembly sliding inside the paths 34 and 35 provided at the platform. The projections 25 and 26 of the walls 23 and 24 retain the peripheral web of the ferrule 37. The peripheral web 36 is located at the end of the mobile frame 38.

A single-piece double socket 39 forms two paths. The first path 40 is for the frame 29 and the second path 41 is for the frame 38. Both frames move along said paths of the socket 39 in a parallel relationship.

The path 41 has extensions 42 at the lower ends of its walls and transverse grooves 43 which receive the peripheral web 36 of the ferrule 37 for retaining the frames in the extended position.

One of the extensions 42, the one corresponding and parallel to the frame 29, is provided with a semispherical embossing 44 that, in the extended position, fits the punching 45 of said frame.

It is inferred from the above description that the seizing framework, formed by two parallel frames, can be formed by sliding one of the frames until the web of the ferrule fits the projections of the flexible wall of the quadrangular piece which joins one of the frames to the rigid platform or base for supporting the bag. Flexibility has been studied so that the ferrule can disengage itself with a slight pressure, but with no possibility of fortuitous uncoupling during handing.

Similarly, in the coupling of the ferrule between the lugs of the double sockets, it is retained in the unfolded position until a certain force is exerted for the uncoupling thereof.

With these characteristics, the folding and unfolding of the bag becomes simple and efficient.

I claim:

1. A foldable shopping cart comprising a rigid base for supporting a bottom portion of a shopping bag, first and second frameworks disposed parallel to one another, first and second frames secured to said base and supporting first and second wheels, means connecting said base and frames for allowing the wheels to be folded underneath said base, said first framework being slidabale relative to said second framework from an extended position for use to a folded position for transport, said first framework being attached to an upper portion of the bag for pulling the bag from a folded position of reduced size to an extended position, said second framework being articulated to and secured adjacent an articulation axle to said base, a first member connected to said base and having a first lug which allows rotation about said axle of said second framework, said first lug passing through a slot provided in said base, to a position where said lug retains said wheels in an unfolded position by contact with the associated wheel frame, a quadrangular piece secured to a lower walls, end of one of said frameworks and havaing first and second walls, said first wall parallel to said second wall and having a greater flexibility than said second wall, an inner projection extending from an inner face of said first wall secures the framework and bag in the unfolded position by engaging said base.

2. A foldable cart as recited in claim 1, further comprising an embossing disposed on said first and second walls, said embossings facing one another to form a passage therebetween for a ferrule which surrounds a portion of one of said frameworks, said ferrule having a peripheral web to engage said embossings.

3. A foldable shopping cart as recited in claim 1, further comprising a ferrule which surrounds said one framework and a double socket with two sockets forming a guide between said frameworks with each said framework extending through a respective socket, said double socket having a plurality of notches, said ferrule having a peripheral web which engages said plurality of notches when said frameworks are in the extended position.

4. A foldable shopping cart as recited in claim 1, further comprising a double socket with two sockets and a pair of extensions projecting from one said socket, one said framework passing through said one socket, the other said framework passing through the other said socket, one of said extensions having a semi-spherically shaped embossing extending from its outer face to engage a punching formed in the other said framework to secure the cart in the extended position.

5. A foldable shopping cart as recited in claim 2, wherein said embossings are notches.

6. A foldable shopping cart as recited in claim 2, further comprising a double socket with two sockets and a pair of extensions projecting from one said socket, one said framework passing through said one socket, the other said framework passing through the other said socket, one of said extensions having a semi-spherically shaped embossing extending from its outer face to engage a punching formed in the other said framework to secure the cart in the extended position.

7. A foldable shopping cart as recited in claim 3, further comprising a double socket with two sockets and a pair of extensions projecting from one said socket, one said framework passing through said one socket, the other said framework passing through the other said socket, one of said extensions having a semi-spherically shaped embossing extending from its outer face to engage a punching formed in the other said framework to secure the cart in the extended position.

* * * * *

United States Patent [19]

Anderson

[11] **4,448,434**

[45] **May 15, 1984**

[54] COLLAPSIBLE HAND TRUCK

[76] Inventor: **Milan B. Anderson**, P.O. Box 178088, San Diego, Calif. 92117

[21] Appl. No.: **335,875**

[22] Filed: **Dec. 30, 1981**

[51] **Int. Cl.**³ **B62B 1/12**

[52] **U.S. Cl.** **280/40**; 224/915; 248/98; 280/654; 280/655; 280/47.28; 280/47.29

[58] **Field of Search** ..... 280/654, 655, 651, 652, 280/47.13 R, 47.17, 47.18, 47.19, 47.24, 40, 645, 47.28, 47.27; 248/98, 101; 224/DIG. 915, DIG. 922, 42.45 R

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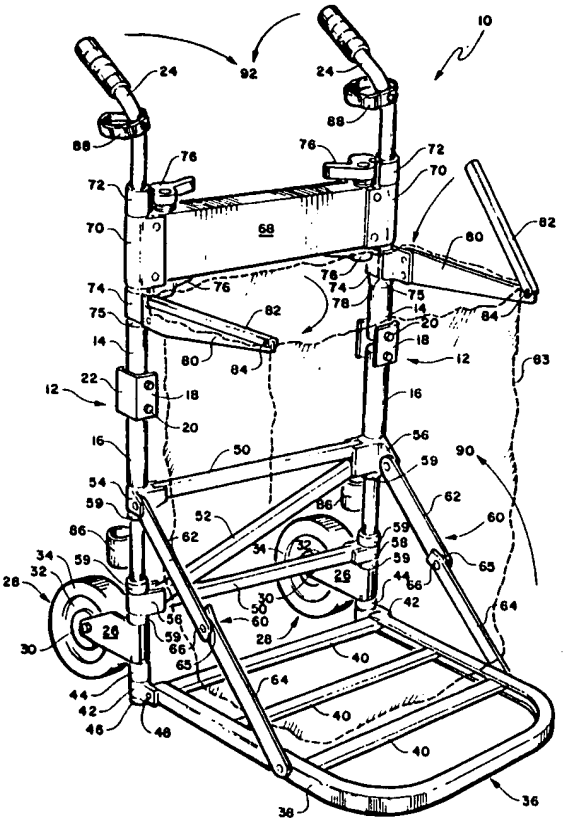
Primary Examiner—Joseph F. Peters, Jr.
Assistant Examiner—Joseph McCarthy
Attorney, Agent, or Firm—Frank D. Gilliam

[57] **ABSTRACT**

The collapsible hand truck disclosed includes a pair of spaced-apart, segmented, upright frame members, their segments each being pivotly connected to a "U" bracket; The upright frame members each having a handle and a wheel at opposite ends; The handles and wheels extending in the same direction from the upright members; A load-carrying bracket is rotatably connected between the upright members near the handle ends; Brace members are rotatably connected to the upright members between the "U" bracket and wheel ends; and A weight support bracket is rotatably and pivotly connected between the upright frame members and when in an operable position extends outwardly from the upright frame members on the opposite side from the handles and wheels.

9 Claims, 3 Drawing Figures



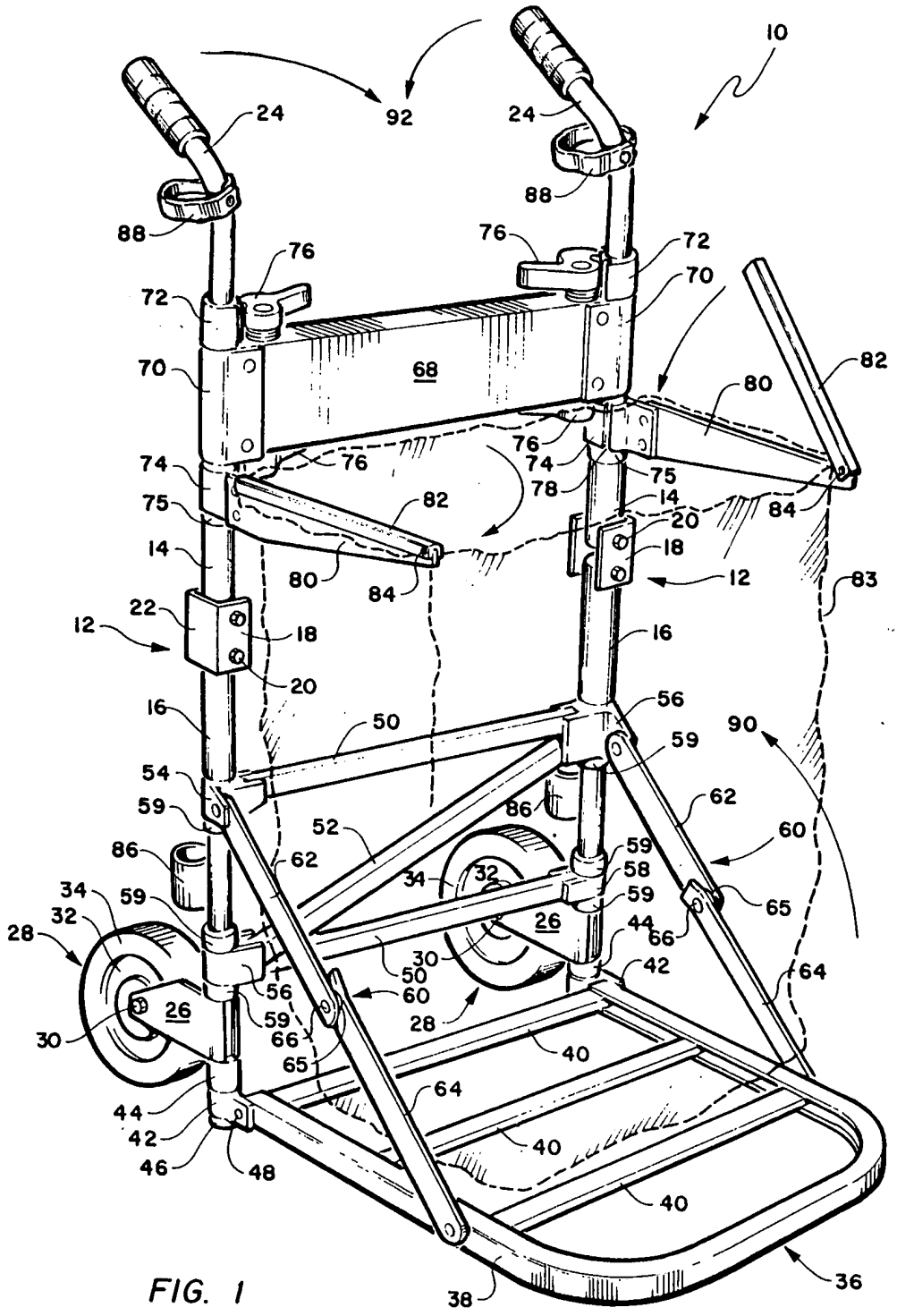

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FIG. 1

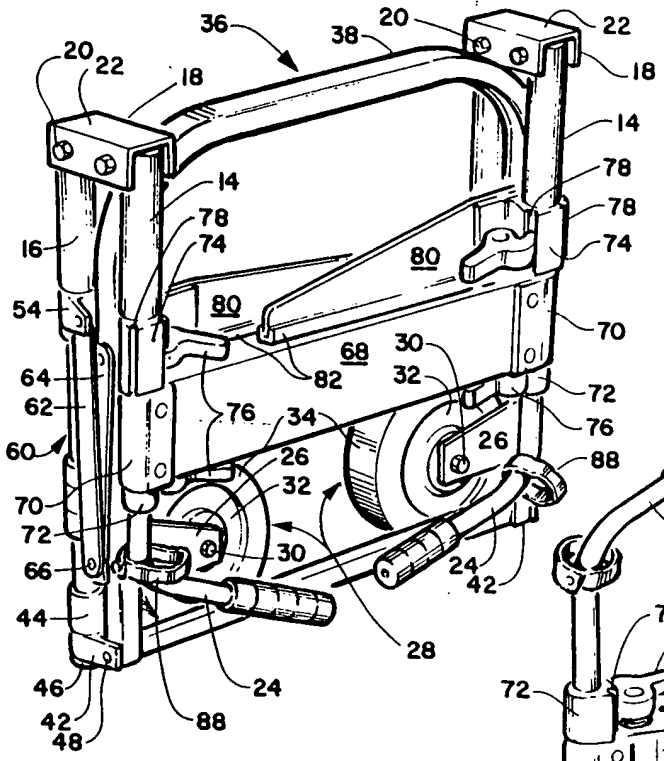
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FIG. 3

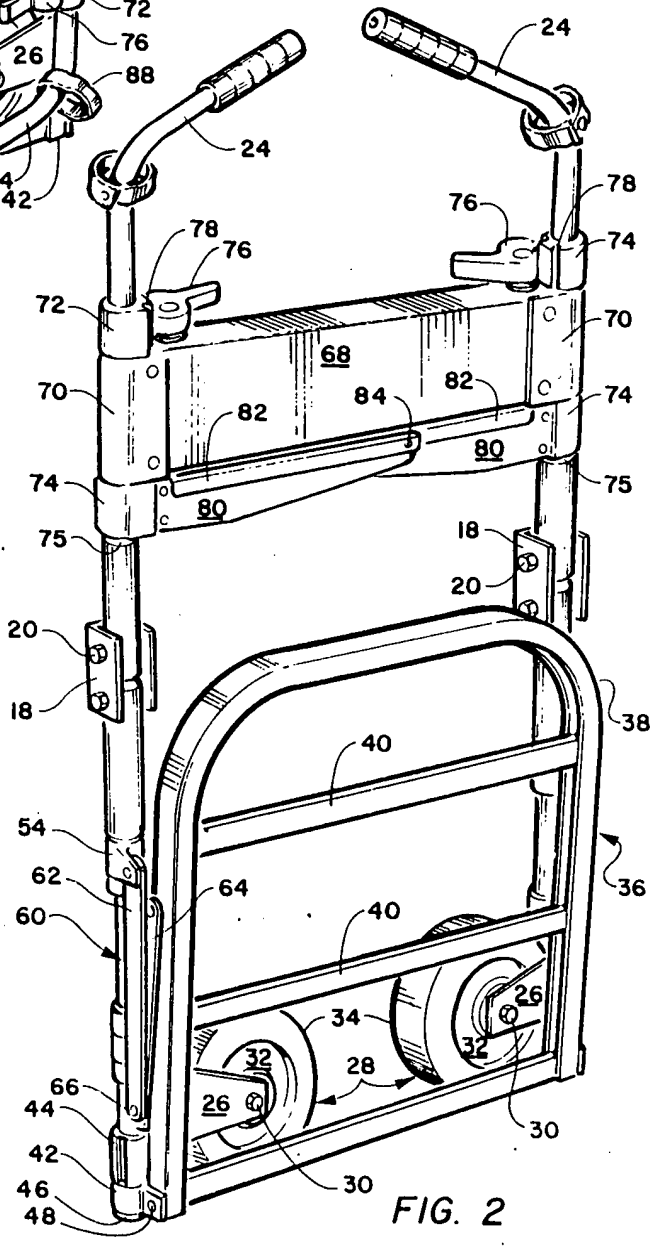
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FIG. 2

COLLAPSIBLE HAND TRUCK

BACKGROUND OF THE INVENTION

1. Field of Invention

This invention relates to wheeled carriers and, more particularly, to such carriers that are collapsible to a minimum dimension for hand carrying and storing.

2. Prior Art

The problem of providing a sturdy, collapsible hand cart for transporting weighted items, such as fishing equipment, boat engines or the like, to and from boats, that can be collapsed or folded into a small package for storage or transporting in an automobile, airplane or boat is of long-standing, and many devices of the prior art provide for solutions of one type or another.

U.S. Pat. No. 2,884,257 teaches a foldable hand truck for transporting and displaying items such as boat engines. The hand truck, when in a folded position, is not confined within the dimensions of the frame members, as the handles and wheels extend well beyond the frame area and no foldable weight-supporting shelf is provided.

U.S. Pat. No. 3,241,852 teaches a folding hand truck for transporting boat engines and the like. Although this hand truck folds to a small package and a foldable weight-supporting shelf is provided, it takes excessive time to prepare the truck for use or for storage. The truck must be dismantled in part for storage and reassembled for use. The loss or breakage of its removable elements over a long period of time appears certain.

Additional examples of folding hand trucks or the like are taught by U.S. Pat. Nos. 1,409,838; 2,507,234; 2,745,643; 3,014,760; 3,400,942; 3,229,990 and 3,947,054.

SUMMARY OF THE INVENTION

To obtain its objects, the invention provides a foldable hand truck, substantially rectangular, constructed from rigid tubing, having a pair of wheels positioned on adjacent corners.

An object of the invention is to provide a collapsible hand truck that can be collapsed into a relatively small structure for storage and transport without the temporary removal of any of its parts or elements.

Another object of this invention is to provide a sturdy, collapsible hand truck that can be collapsed for storage or deployed from a collapsed condition to a use condition in a minimum amount of time.

Another object of this invention is to provide a sturdy, collapsible hand truck that is simple to collapse and deploy from a collapsed condition to a use condition.

A still further object of this invention is to provide a hand truck capable of supporting relatively heavy loads, both at an elevated position adjacent the handles, such as boat engines, and on a lower weight-supporting platform.

A yet further object of the invention is to provide a collapsible hand truck which, when in a collapsed condition, forms a compact package, substantially rectangular.

The foregoing and other objects will best be understood from the following description, read in connection with the drawings of one preferred embodiment of the invention, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the folding hand truck as it appears in an unfolded standing position ready for use;

FIG. 2 is a perspective view of the folding hand truck of FIG. 1 in a partially folded or colapsed condition; and

FIG. 3 is a perspective view of the folding hand truck of FIG. 1 in a completely folded or collapsed condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Like reference numberals are used throughout the drawing figures and specifications to denote the same or like part or element.

Referring now to the figures, the foldable cart **10** is seen to be an assembly of several foldable parts including right and left tubular side member **12**, comprising upper and lower portions **14,16** respectively. The upper and lower portions **14,16** are interconnected by a "U" shaped connector **18**. The "U" connector is pivotly attached to the upper and lower portions **14,16** by bolts **20** which pass through bores in the portions **14,16** (not shown) and are secured therethrough. As can be seen in FIG. **1**, the open portion of the "U" connectors face inward toward each other, thereby locking pivotal movement of the upper and lower portions **14,16** in their extended configuration. The tubular upper and lower portions **14,16** respectively are positioned away from the back wall **22** of the "U" connector so that they can pivot relative to the bracket back wall when rotated to their FIG. **2** position, hereinafter explained in more detail.

At the upper ends of the upper portions of the side members, handles **24** are provided. The handles ends include convenient grip means **26**, constructed of resilient material which closely resembles bicycle or motorcycle-type handle grips. Near the low end of the lower portions **16** of the side members **12**, wheel brackets **26** are attached. Each wheel bracket **26** carries a wheel **28** therein. An axle **30**, passing through the bracket and wheel, holds the wheel to the bracket and allows the wheel to rotate relative thereto. The wheel typically will have a metal hub or center **32** and the resilient member **34** positioned on the hub or center **32**. Typical bushing-type bearings within the hub adjacent the axle (not shown) allow for ease of wheel rotation when the cart is being operated.

Positioned on the extreme lower end of the lower portion **16** of the side members **12** is a weight-supporting shelf **36**. The shelf **36** includes an outer periphery member **38**, which extends from the lower ends of the lower portion **16** of the frame members **12** outward and forms the outer surface of the shelf and cross-members **40**, which are attached to the outer shelf periphery member **38** to provide the shelf support and an open floor. The shelf **36** attaches to the lower portion **16** of the right and left side members through a bracket **42**. The bracket **42** is freely or rotatably connected to the side members **16** and held captive thereon by bushings **44,46** which are fixedly attached to the side members. The shelf outer periphery member **38** is pivotly attached to the shelf bracket **42** by a pivot **48**. The pivot **48** may be of any convenient type, such as but not limited to a pin or smooth bolt passing through bores in the bracket and periphery member and retained therein by an enlarged head member and/or cotter pins or nut

a load-carrying bracket positioned between and rotatably attached to the upright members adjacent the handle member end thereof;

a weight support shelf member rotatably attached to the upright members at their wheel adjacent ends;

brace members extending between said upright members intermediate said common "U" bracket and said wheels, said upright members are rotatable relative thereto; and

a pair of levers pivotally interconnected intermediate their ends, each of said levers being pivotally attached at one end to said brace members and at their opposite end to said weight support shelf member intermediate the upright member attachment and its opposite outer end surface.

2. The invention as defined in claim 1 additionally comprising a pair of brackets at least one rotatably attached at a fixed location to each of said upright members intermediate said load carrying bracket and said "U" bracket for rotation relative to said common plane.

3. The invention as defined in claim 2 wherein the upper surface of each bracket of said pair of brackets includes an elongated member for nesting therewith, said elongated member is pivotally attached to the distal end of an upper surface bracket whereby the elongated members distal end is free to rotate with respect to the upper surface of its associated bracket.

4. The invention as defined in claims 2 and 3 further comprising a first locking means for locking said pair of brackets in a first position parallel to said handle members and wheels and in a second position perpendicular thereto.

5. The invention as defined in claim 1 further comprising locking means for locking the rotation of said upright members with respect to said load-carrying bracket, brace members and weight-supporting shelf.

6. The invention as defined in claim 1 additionally comprising means for attaching elongated pole members to said upright members.

7. The invention as defined in claim 2 additionally comprising locking means for locking the pivotly interconnected levers in their maximum extended position.

8. The invention as defined in claim 3 wherein a soft container is positioned between said pair of brackets in an open condition and locked thereto by said elongated member.

9. The invention as defined in claim 1 wherein said "U" bracket locks the segments of said upright members in their extended position when rotated to a first position and allows said segments to pivot toward each other when rotated to a second position.

* * * * *

United States Patent [19]

Arias et al.

[11] **4,261,447**

[45] **Apr. 14, 1981**

[54] **SUITCASE CART**

[76] Inventors: **Antonio M. Arias**, 150 E. 49th St., New York, N.Y. 10017; **Juan F. Cerna**, 8889 Fountainbleu Blvd., Miami, Fla. 33172

[21] Appl. No.: **115,797**

[22] Filed: **Jan. 28, 1980**

[51] **Int. Cl.**³ **A45C 5/14**

[52] **U.S. Cl.** ..... **190/18 A**; 280/47.26; 280/47.29

[58] **Field of Search** ..... 190/18 A; 280/35, 37, 280/43.1, 43.24, 47.17, 47.18, 47.28, 47.29, 47.26

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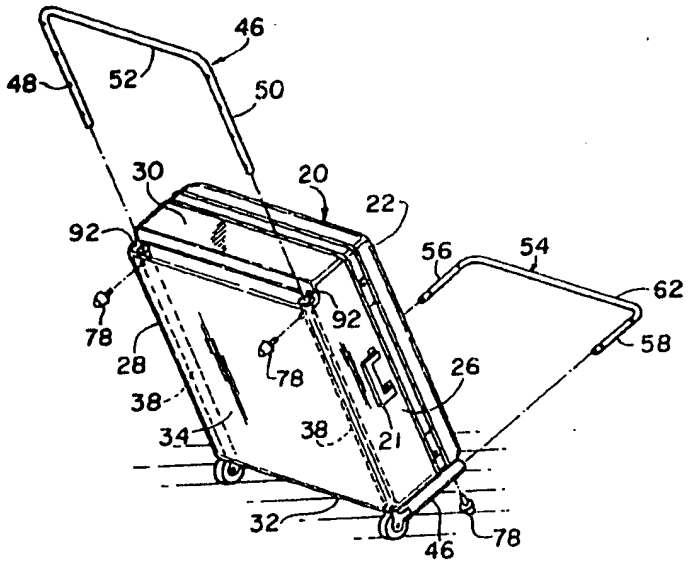
Primary Examiner—Donald F. Norton

Attorney, Agent, or Firm—Oltman and Flynn

[57] **ABSTRACT**

The suitcase cart includes a suitcase and parallel tubular frame members affixed to the bottom of the suitcase. The frame members are L-shaped. A U-shaped handle telescopes relative to one pair of legs of the frame members, and a U-shaped base member telescopes relative to the other pair of legs of the frame members. Wheels are provided at the corners of the frame members. The handle is manipulated to wheel the suitcase along with or without an additional article on the base.

8 Claims, 13 Drawing Figures



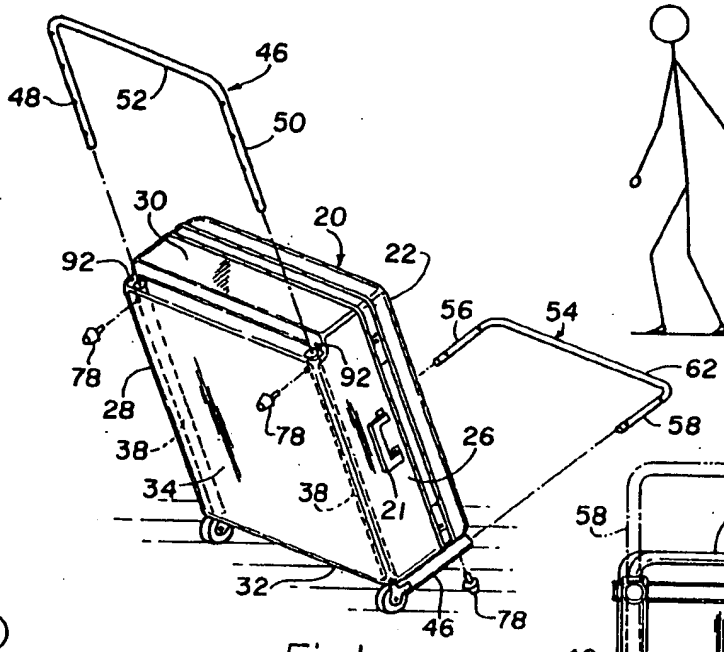


Fig.1

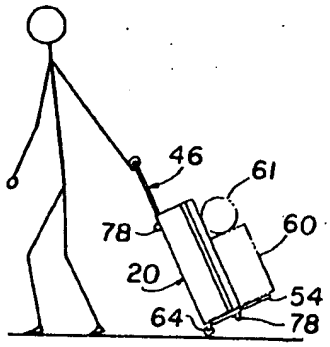


Fig.2

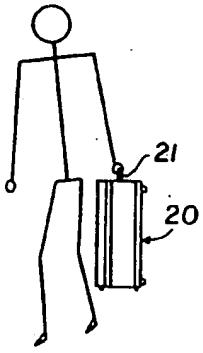


Fig.3

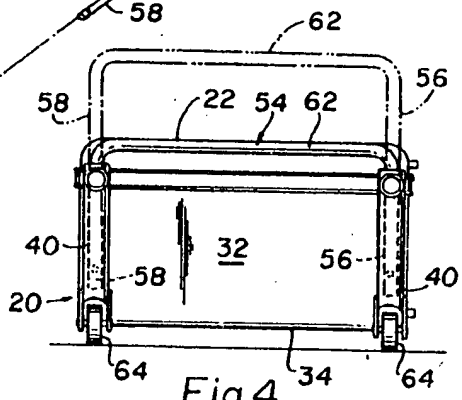


Fig.4

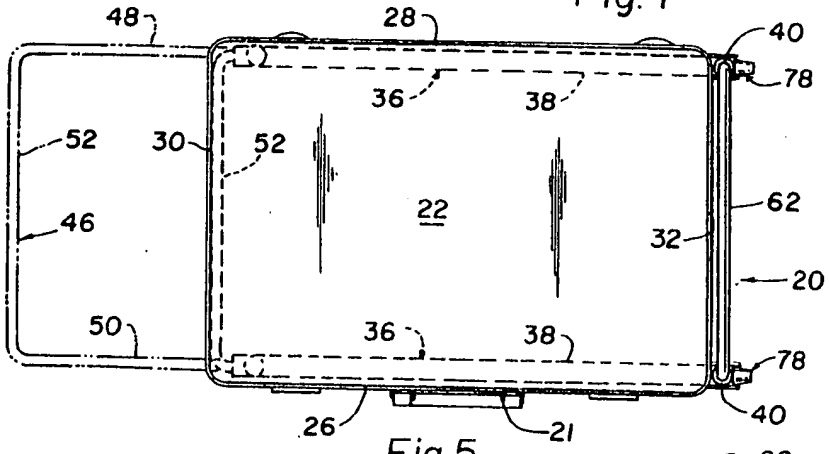


Fig.5

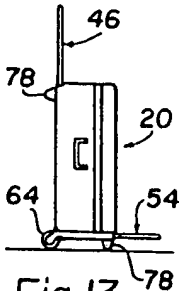


Fig.13

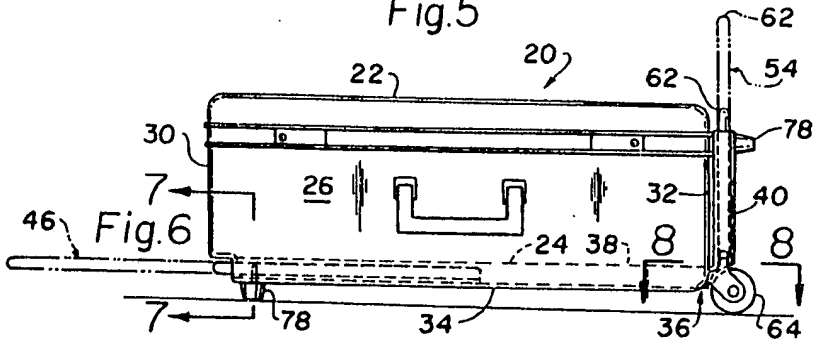


Fig.6

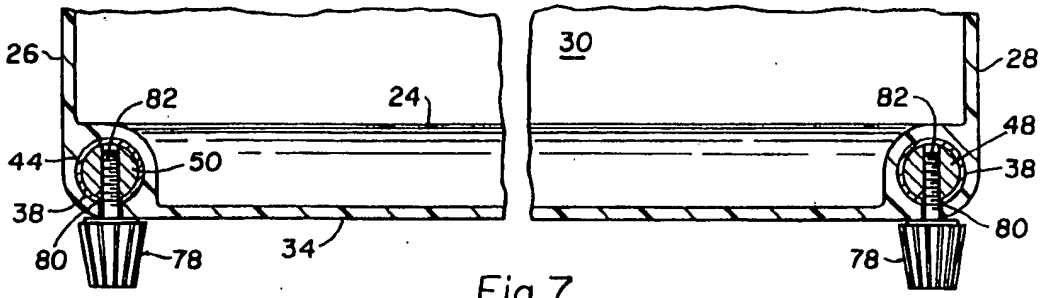
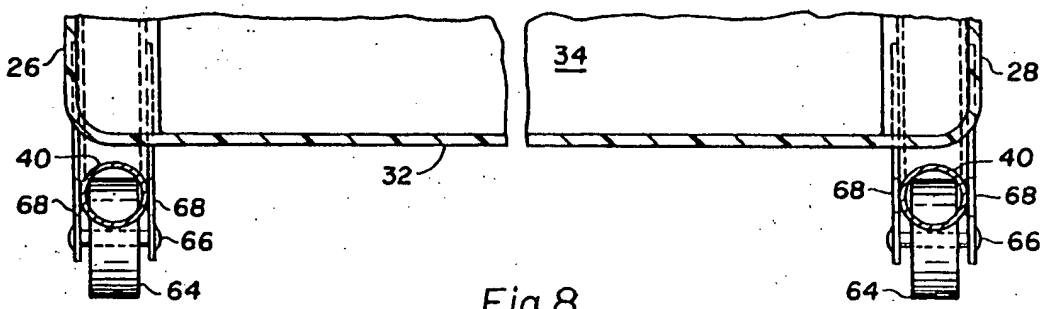


Fig.7



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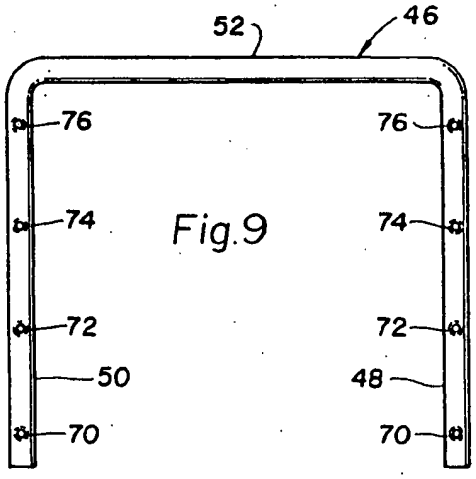


Fig.9

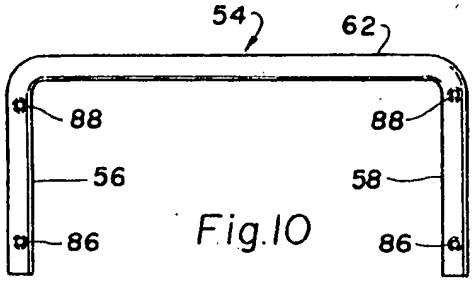
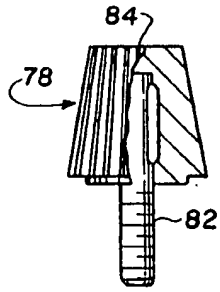


Fig.10



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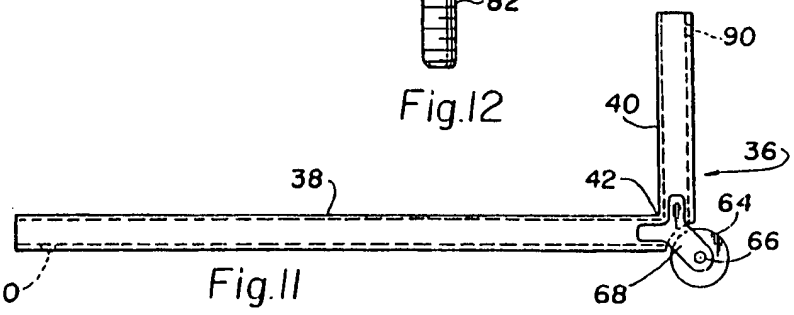

Fig.11

SUITCASE CART

BACKGROUND OF THE INVENTION

U.S. Pat. No. 4,036,336-Burtley describes a wheeled suitcase convertible to a luggage cart in which a handle is combined with pivotal support arms attached to the bottom of the suitcase providing an additional luggage supporting surface. The general purpose of the present invention is to provide a suitcase cart with an extensible handle and also an extensible base that provides a more reliable additional luggage supporting surface.

SUMMARY OF THE INVENTION

In accordance with the present invention, a pair of substantially L-shaped tubular frame members are provided, each having two legs joining each other at a corner. One leg of each of the frame members is affixed to the bottom wall of the suitcase and extends parallel to two respective side walls of the suitcase. The other leg of each of the frame members extends parallel to the same side walls and is adjacent to a third side wall. A generally U-shaped handle has parallel legs telescopically received in the first legs of the frame members for manipulating the suitcase. The handle has a cross arm movable from a retracted position near the fourth side wall to an extended operating position spaced outward from the fourth side wall. A generally U-shaped base has parallel legs telescopically received in the other legs of the frame members for retaining an additional article. The base has a cross arm movable from a retracted position near the top wall to an extended operating position spaced separate from the top wall. Wheels are affixed to the corners of the L-shaped frame members for permitting the suitcase to be wheeled along by manipulation of the handle with or without an additional article on the base.

Accordingly, it is an object of the present invention to provide a wheeled suitcase with an improved handle and base structure for wheeling the suitcase along by manipulation of the handle with or without an additional article on the base.

Another object of the invention is to provide a base for a wheeled suitcase with a handle, the base having a cross arm which provides continuous support across the width of the article which is received on it.

Other objects of this invention will appear from the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view of a wheeled suitcase cart in accordance with one embodiment of the invention;

FIG. 2 is a schematic view showing the wheeled suitcase cart being pulled along on wheels by a user;

FIG. 3 is a schematic view showing the wheeled suitcase cart being carried by a user;

FIG. 4 is an elevational view of the suitcase cart showing a base in a retracted condition and also in an extended condition;

FIG. 5 is a top plan view showing a handle in a retracted condition and also in an extended condition;

FIG. 6 is a front elevational view of the wheeled suitcase cart;

FIG. 7 is a fragmentary sectional view taken along line 7—7 of FIG. 6;

FIG. 8 is a fragmentary sectional view taken along 8—8 of FIG. 6;

FIG. 9 is a plan view of a generally U-shaped handle included in the suitcase cart;

FIG. 10 is a plan view of a generally U-shaped base included in the wheeled suitcase cart;

FIG. 11 is an elevational view of a generally L-shaped frame member included in the suitcase cart;

FIG. 12 is a plan view of a glide device, partly broken away, included in the suitcase cart; and

FIG. 13 shows the suitcase cart resting on its base.

Before explaining the disclosed embodiment of the present invention in detail, it is to be understood that the invention is not limited in its application to the details of the particular arrangement shown, since the invention is capable of other embodiments. Also, the terminology used herein is for the purpose of description and not of limitation.

DETAILED DESCRIPTION

The suitcase 20 includes a top wall 22, a partial bottom wall 24, a front wall 26, a rear wall 28, a left side wall 30 and a right side wall 32. The suitcase 20 also includes a cover 34 extending parallel to the bottom wall 24 for covering the handle as will be explained. The suitcase has a carrying handle 21.

The suitcase cart also includes a pair of substantially L-shaped, tubular frame members 36 (FIG. 11) for supporting the suitcase. Each of the tubular frame members 36 has two legs 38 and 40 which are perpendicular to each other and join each other at a corner 42. The legs 38 of the frame members 36 are telescopically received in openings 44 (FIG. 7) adjoining the bottom wall 24 of the suitcase so that the legs 38 are affixed to the bottom wall 24 of the suitcase and extend parallel to the side walls 26 and 28.

The other legs 40 of the frame members 36 also extend parallel to the side walls 26 and 28 adjacent the right side wall 32. Legs 38 are parallel to each other and legs 40 are also parallel to each other. The two legs of each pair are spaced from each other.

A generally U-shaped handle 46 has parallel legs 48 and 50 telescopically received in the legs 38 for manipulating the suitcase as shown in FIG. 2. The handle 46 has a cross arm 52 providing a grip that is movable from a retracted position near the left side wall 30 to an extended operating position spaced outwardly from the left side wall 30 as shown in dashed lines for example in FIGS. 5 and 6.

A generally U-shaped base 54 has parallel legs 56 and 58 that are received in the legs 40 of the frame members 36 for retaining an additional article 60 as shown in FIG. 2. The additional article 60 simply rests on the base 54 when it is extended, and the article 60 also rests on the suitcase 20 as shown in FIG. 2. Still another article 61 is shown resting on top of the article 60.

The base 54 has a cross arm 62 that is movable from a retracted position near the top wall 22 to an extended operating position spaced upward from the top wall 22 as shown for example in FIG. 6. When the base 54 is in the extended position, the cross arm 62 supports the article 60 across its entire width, and thus provides a very stable platform for articles of a large range of sizes. Such continuous support across the width of the suitcase cart is an important feature of the invention.

A pair of wheels 64 are affixed to the corners 42 of the L-shaped frame members 36 for permitting the suitcase to be wheeled along as shown in FIG. 2 by manipulation of the handle 46 with or without an additional article on the base 54. The wheels 64 are mounted on shafts 66 extending between brackets 68. A pair of the brackets 68 are welded or otherwise affixed to the corner 42 of each of the frame members 36.

The leg 50 of handle 46 has four holes 70, 72, 74, and 76. The other leg 48 of handle 46 also has four holes 70, 72, 74 and 76. A glide device 78 is provided for each of the legs 48 and 50. The legs 38 of the frame members 36 have clearance holes 80 through which a screw 82 of the two glide members 78 extend freely. The holes 70, 72, 74 and 76 have threads, and the screws 82 also have threads that screw into the threads of the holes as shown in FIG. 7. The glide surface 84 is positioned so that the suitcase 20 is supported in a level position when resting on the glide surface 84 as shown in FIG. 6.

Two additional glides 78 are provided for the two legs 56 and 58 of the base 54. The legs 56 of base 54 has two holes 86 and 88. The leg 58 of base 54 also has two holes 86 and 88. All these holes 86 and 88 have threads. The legs 40 have clearance holes 90 through which the screws 82 of the glide members 78 extend freely. The screw portion 82 of each glide member screws into either the openings 86 or the openings 88 depending upon the position of the base 54.

The holes 76 are engaged when the handle 46 is in the retracted stowage position. The holes 70 are engaged when the handle is in a fully extended postion. The holes 72 or 74 are engaged when the handle is in either of two intermediate extended positions. The holes 86 are engaged when the base 54 is fully extended. The holes 88 are engaged when the base 54 is in the fully retracted position.

The glide surface 84 is adjusted so that when the suitcase is in the upright position shown in FIG. 13, it is level. The bottom cover 34 of the suitcase is recessed slightly at 92 from the left side wall 30 to receive the cross arm 52 of the handle 46 in the retracted position with the cross arm 52 slightly inward from the left side wall 30. This is an optional feature.

As shown in FIG. 4, the legs 40 terminate just under the top wall 22 of the suitcase so that when the cross arm 62 is fully retracted, it is located in a recessed position just slightly below the top wall 22.

The suitcase is generally rectangular in plan and the longer sides of the rectangle are parallel to the frame members.

The suitcase cart can be raised or lowered to a different level simply by grasping and manipulating the two crossarms 52 and 62, and this can be done even with additional luggage in place.

Note that it is possible to remove the frame members from the holes 44 after first removing the handle 46. Then the handle 46 can be reattached to the frame members and the frame, handle and base can be used as a separate cart. The handle 46 and base 54 can be made to telescope widthwise to make the cart narrower.

I claim:

1. In combination with a suitcase having a top wall, a bottom wall and four side walls, the improvement comprising:

a pair of substantially L-shaped, tubular frame means for supporting said suitcase and each having two legs joining each other at a corner;

one leg of each of said frame means being affixed to the bottom wall of said suitcase and extending parallel to two respective side walls with said one legs being parallel to each other in spaced relation;

the other leg of each of said frame means extending parallel to said respective side walls adjacent a third of said side walls with said other legs parallel to each other in spaced relation;

a generally U-shaped handle means having parallel legs telescopically received in said one legs of said frame means for manipulating said suitcase;

said handle means having a cross arm movable from a retracted position near the fourth side wall to an extended operating position spaced outward from said fourth side wall;

a generally U-shaped base means having parallel legs telescopically received in said other legs of said frame means for retaining an additional article;

said base means having a cross arm movable from a retracted position near the top wall to an extended operating position spaced upward from said top wall;

and wheel means affixed to the corners of said L-shaped frame means for permitting said suitcase to be wheeled along by manipulation of said handle means with or without an additional article on said base means.

2. The suitcase according to claim 1 in which:

said suitcase has a cover over said one leg of said frame means for hiding the same.

3. The suitcase according to claim 2 in which:

said cover is recessed from said fourth side wall to receive said cross arm of said handle means in said retracted position.

4. The suitcase according to claim 1 in which:

said legs and said handle means and said base means each have openings therein corresponding to said extended and retracted positions;

and said suitcase further includes glide means removably received in certain ones of said openings for supporting said suitcase in alternate level positions, and for retaining said cross arms in said extended and retracted positions.

5. The suitcase according to claim 4 in which:

said openings in said handle means and said base means have threads and said glide means includes screw means screwed into said threads respectively.

6. The suitcase according to claim 5 in which:

said other legs of said frame means terminate under said top wall to permit recessing of said cross arm of said base means relative to said top wall.

7. The suitcase according to claim 6 which:

said suitcase has a cover over said one legs of said frame means for hiding the same.

8. The suitcase according to claim 7 in which:

said cover is recessed from said fourth side wall to receive said cross arm of said handle means in said retracted position.

* * * * *

United States Patent [19]

Smith

[11] **4,044,784**

[45] **Aug. 30, 1977**

[54] **WALKING AID CANE**

[76] Inventor: **Alfred A. Smith**, 13114 Margate St., Van Nuys, Calif. 91401

[21] Appl. No.: **662,525**

[22] Filed: **Mar. 1, 1976**

[51] **Int. Cl.**[2] **A45B 1/00; F16M 13/08**

[52] **U.S. Cl.** **135/67; 135/75**

[58] **Field of Search** ..... 135/45 R, 45 A, 54, 135/67, 75

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Assistant Examiner—Conrad L. Berman
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[57] **ABSTRACT**

A low profile, low center of gravity walking aid cane construction with a central support member having its lower end rigidly connected to four legs. The four legs each have a body portion and a foot portion with the body portions positioned generally transverse to the support member and with the foot portions of the legs depending downwardly from the outer ends of the body portions for contact with a supporting surface. The extremities of the foot portions lie in a plane that is generally transverse to the support member and the extremities are positioned generally at the corners of a rectangle within this plane. The inner legs which terminate at the inner corners of the rectangle are shorter than the legs which terminate at the outer corners and support means provide support for supported lengths of the body portions of the legs. The support means is shaped and positioned to provide unsupported lengths of the body portions of the legs which have a substantially equal resistance to bending forces.

16 Claims, 5 Drawing Figures

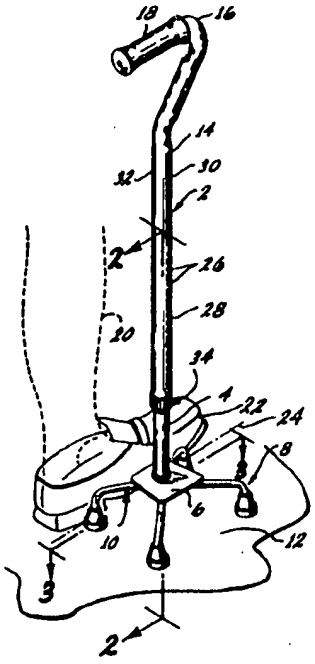

Fig. 1

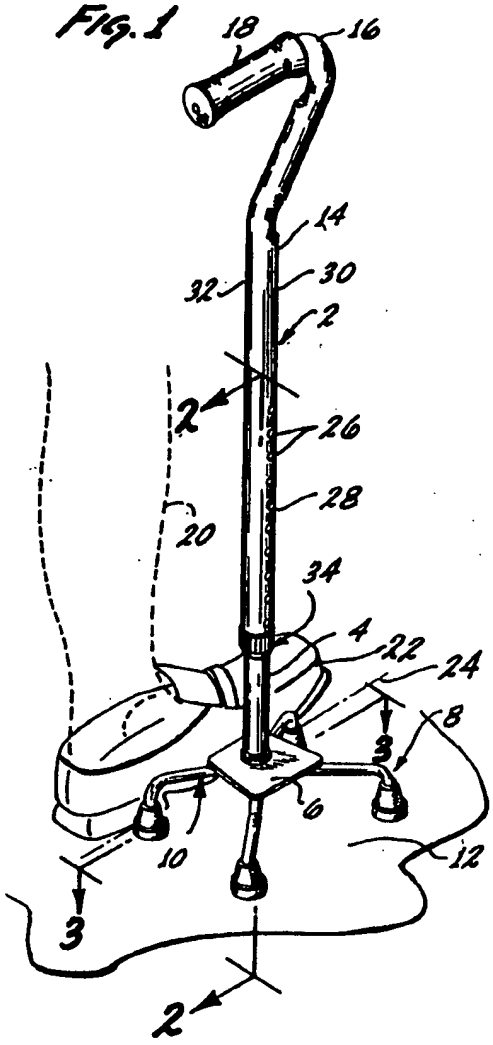
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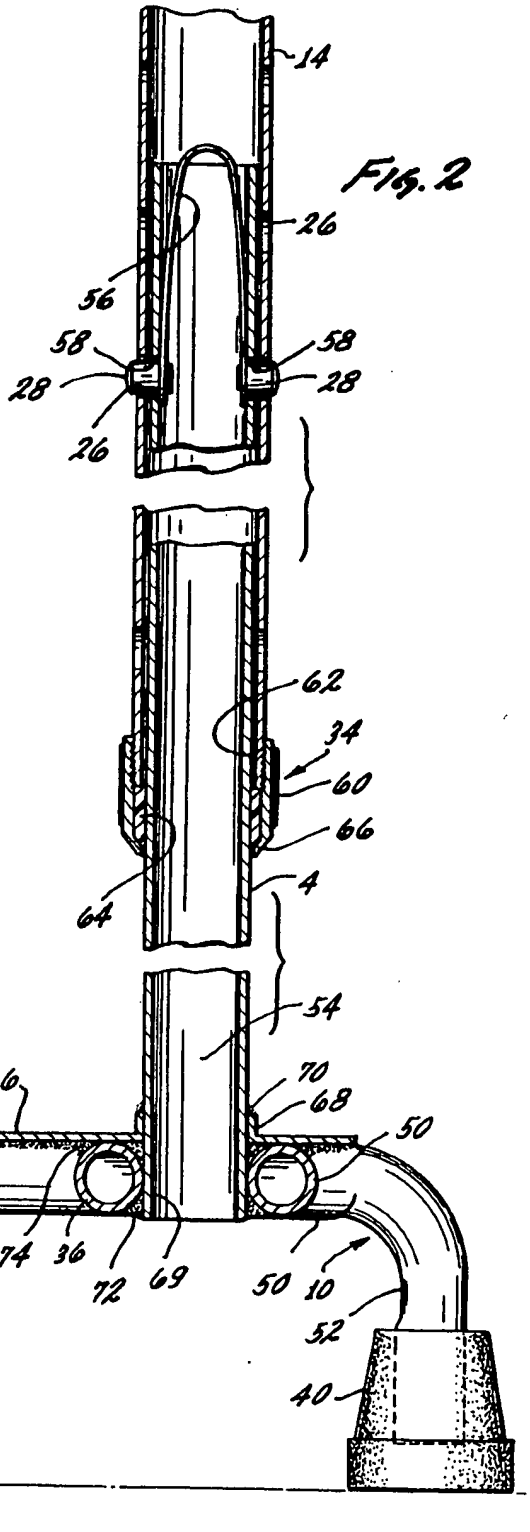
Fig. 2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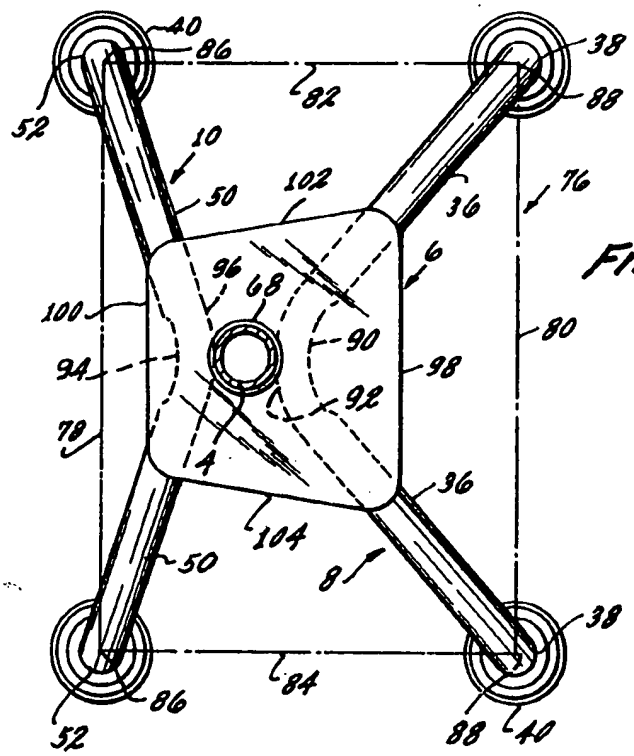


Fig. 3

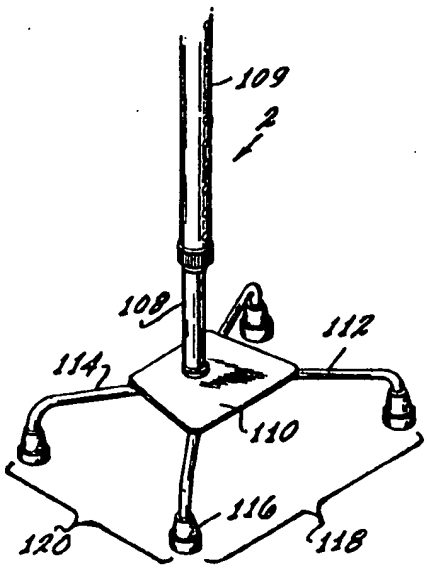


Fig. 5

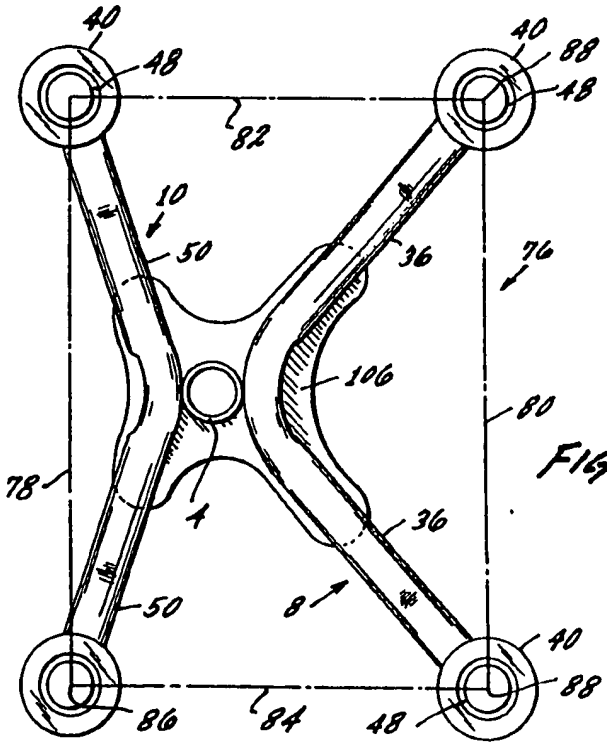


Fig. 4

WALKING AID CANE

BACKGROUND OF THE INVENTION

With the increases in life expectancy which have resulted from medical advances, a larger proportion of the world's population lives to an advanced age. As a result, there are now a larger proportion of aged and infirm people than there were previously.

Aged or infirm persons have needs which are different than those of the general population. In particular, aged and infirm persons may frequently require the assistance of a special device in order to walk with safety. Among such devices, which are known to the prior art, are walking aid canes in which the base of the cane is broadened by the addition thereto of four legs which provide a firmer base for the cane to prevent the user from falling.

In previous walking aid canes, the leg members of the cane have generally projected upwardly and inwardly at an angle from a supporting surface with the leg members connected at their upper ends to an upwardly extending central support post. The legs of such canes formed what may be termed a pyramidal configuration. While such canes have been somewhat satisfactory, they have suffered from a number of drawbacks. With the cane legs forming a pyramidal configuration, the center of gravity of the cane is relatively high so that the cane may be tipped over to permit falling of the user. Further, the pyramidal configuration of the cane legs has interfered with the user's foot and leg movements with the user's foot in close proximity to the cane.

To avoid interference of the cane with his foot movement, the user may be forced to position the cane away from his body. This is generally unsatisfactory since the supporting force provided by the cane is then not directed upwardly in a straight line through the user's arm and shoulder. Rather, the supporting force provided by the cane will be angled upwardly in a direction toward the user's body such that the force applied by the user to the cane will have a side force component directed away from the user's body. The side force component will have a tendency to tip the cane and to permit the user to fall.

A further disadvantage of previous walking aid canes is that the handle member of the cane is restricted in its vertical positioning by a vertically elevated connection point between the upper end of the inwardly angled cane legs and the cane support member. The handle member of the cane will, generally, be mounted in telescoping relation with respect to the cane support member. However, due to the vertically elevated connection point between the cane legs and support member, the downward adjustment of the handle member is limited by the vertically elevated connection point which prevents downward movement of the handle member beyond this point. Additionally, in walking aid canes of the prior art, the inwardly angled position of the cane legs has limited the extent of frictional engagement between legs and a supporting surface.

In providing a solution to the deficiencies of previous walking aid canes, it would be desirable to have a walking aid cane in which the configuration of the leg members provided a cane with a very low center of gravity. Such a cane would be more difficult to tip over and would, thus, provide firmer support to an aged or infirm user. Also, it would be desirable to provide a walking aid cane in which the shape and position of the leg members was such that the cane could be placed more closely adjacent to the user's foot and leg without interfering with the user's movements. Such a cane would be safer since there would be less tendency for the user to trip and to fall.

It would also be desirable to provide a walking aid cane in which the cane legs make contact with a supporting surface over a larger frictional area. Such a cane would provide greater frictional engagement between the extremities of the legs and a supporting surface to prevent slippage of the cane with respect to the supporting surface. Additionally, it would be desirable to have a walking aid cane in which the handle member could be vertically adjusted with respect to a support member without interference from the cane legs and their point of connection to the cane support member. Such a cane would provide greater adjustability of the handle member so that the cane could be more readily accommodated to users of various height.

SUMMARY OF THE INVENTION

In providing a solution to the aforementioned problems, the present invention provides a walking aid cane with a lower center of gravity and a lower profile than those of previous walking aid canes. Moreover, the configuration of the leg members of the present walking aid can permit the user to place his foot and leg closely adjacent to the base of the cane without interference from the cane. The shape and position of the leg members in the present cane permit the handle member for the cane to be vertically adjusted through a greater distance with respect to a support member without interference from the leg members. Still further, in the present cane the leg members make contact with a supporting surface over a greater frictional surface area.

The present walking aid cane construction includes a central support member having an upper end, a lower end, and a longitudinal axis with the support member being rigidly connected at its lower end to four legs which are shaped and positioned to make contact with a supporting surface. Each of the cane legs has a body portion and a foot portion with the body portions of the legs being generally transversely connected to the support member and with the foot portions depending downwardly from the outer ends of the body portions.

The support member has an inner region which faces the user's leg and an outer region that faces away from the user's leg. Additionally, the foot portions of the legs have lower ends which are positioned in a plane that is generally transverse to the axis of the support member with the lower ends being generally positioned at the corners of a rectangle within the plane. The support member also has a front region which faces generally in the direction of movement of the user and a rear region which faces generally in a reverse direction.

The rectangle which is formed within the transverse plane has a front side and a rear side which are generally parallel to each other and are generally transverse to the direction of movement of the user. The rectangle also has an inner side and an outer side which are generally parallel and are in general alignment with the direction of movement of the user. The inner side of the rectangle is positioned closer to the axis of the support member than the outer side while the front side and rear side of the rectangle are each positioned at about the same distance from the longitudinal axis of the support member.

interconnection of outer legs 8, inner legs 10, and trapezoidal plate 6. By reason of its lower center of gravity, the present walking aid cane 2 has less tendency to tip and provides firmer support to an aged or infirm person. Also, by having a lower profile than previous walking aid canes, the present walking aid cane 2 enables the user to place his foot very close to the cane's inner legs 10 during usage. This is advantageous in positioning the walking aid cane 2 beneath the user's downwardly extending arm when his hand grasps the handle grip 18. In contrast thereto, with previous walking aid canes, the cane was positioned a further distance from the user's body to accommodate the space occupied by the pyramidal configuration of the cane legs. This was not entirely satisfactory since the user's downwardly extending arm had to be angled outward from the user's body in grasping the cane. The support provided by the cane was, thus, not positioned in alignment with the user's arm and shoulder.

With the low profile provided by the walking aid cane 2, as compared with previous canes having cane legs with a pyramidal configuration, the user is able to get his foot closer to the upstanding support member 4 and handle member 14. This occurs because there is less interference from the inner cane legs 10 than with the legs of previous canes which were positioned in a pyramidal configuration. In previous canes, the pyramidal arrangement of the legs could cause interference with the user's leg and foot movements which made the canes more difficult to use with safety.

A further advantage of the walking aid cane 2 is that its low profile provides greater vertical adjustability of the handle member 14 with respect to support member 4. In previous walking aid canes with legs forming a pyramidal configuration, the upper extremities of the legs have been connected to a support member at a vertically elevated point. The vertically elevated connection point limited the extent of downward movement of a handle member connected to the support member.

In the present walking aid cane 2, the downward adjustment of handle member 14 with respect to support member 4 is unobstructed by the connection of legs 8 and 10 to the support member. The low profile of legs 8 and 10, coupled with the near proximity of the plate 6 to the supporting surface 12, permits the handle member 14 to be moved downwardly along essentially the full length of support member 4. This, then, permits greater adjustment in the height of the handle member 14 in accommodating the walking aid cane 2 to users by varying its height.

Turning to FIG. 2, which is a sectional view taken along line 2—2 of FIG. 1, the outer legs 8 each include a body portion 36 that is positioned in a generally transverse direction with respect to the support member 4 and a foot portion 38 which extends downwardly from the body portion to contact the supporting surface 12. A foot member 40 having an upwardly directed axial opening 42, and an undercut portion 44 is secured to each of the foot portions 38. The foot members 40 may be formed of rubber or a similar resilient material with a support insert 46 placed within undercut portion 44 to contact the lower extremity of the foot portion 38. The support insert 46 may be in the form of a flat metal disc which makes contact with the lower extremity of foot portion 38 to prevent the lower extremity from digging into or abrading the soft material of the foot member 40.

The foot member 40 may be formed with a gripping groove 48 in its lower surface which contacts the supporting surface 12. By reason of the soft resilient nature of the foot member 40 coupled with the gripping action of gripping groove 48, the foot members make firm engagement with the supporting surface 12. This prevents slippage between the walking aid cane 2 and the supporting surface 12 to provide a firm and positive support for an aged or infirm user.

As illustrated, the inner legs 10 are formed in a generally similar manner to outer legs 8 with each of the inner legs including a body portion 50 and a foot portion 52. The body portions 50 of inner legs 10 are positioned generally transverse to the direction of support member 4 while the foot portions 52 each extend downwardly from a body portion into contact with the supporting surface 12. Foot members 40, as described, are also connected to the lower extremities of foot portions 52 to provide firm, non-sliding contact between the foot portions and supporting surface 12.

The support member 4, which is illustrated as a hollow metal tube, has an axis 54 with the support member projecting upwardly and being telescopically retained within the hollow tubular handle member 14. The detent 28 may be positioned with respect to support member 4 by a loop spring 56 that is positioned in a compressed state within hollow support member 4. The detents 28 may be secured in any suitable manner to each of the ends of loop spring 56 with the detents being retained within oppositely aligned apertures 58 in the wall of the support member 4. When the oppositely positioned holes 26 in the handle member 14 are, then, aligned with the detents 28, the detents project outwardly through the holes to fix the position of the handle member with respect to support member 4. In adjusting the position of the handle member 14 with respect to support member 4, the detents 28 are depressed and the handle member is moved vertically to a new position with the ends of the detents sliding against the inner wall of the handle member as it is moved.

The swivel lock 34 which, with the detents 28, fixes the position of handle member 14 with respect to support member 4, includes an internally threaded sleeve 60 in threaded engagement with an externally threaded portion 62 on the lower end of handle member 14. As illustrated, the sleeve 60 is positioned in spaced annular relation to the external surface of support member 4 with an annular compressible member 64 positioned between the sleeve and support member. The lower end of sleeve 60 includes a contracted portion 66 which fits closely about the exterior surface of support member 4 to retain compressible member 64 between the inner surface of the sleeve and the exterior surface of the support member. As the sleeve 60 is threaded onto threaded portion 62, the contracted portion 66 bears against compressible member 64 which expands in a radially inward direction during contraction to tightly grip the exterior surface of support member 4. In this manner, the handle member 14 is fixedly positioned by the detents 28 and swivel lock 34 with respect to support member 4.

In forming a strong unitary structure, the trapezoidal plate 6 includes an upwardly directed flange 68 which surrounds the support member 4. As illustrated, the support member 4 includes a lower end 69 which projects downwardly through flange 68 with the support member being fixedly secured to the flange by

means of brazing 70. The body portions 36 of the outer legs 8 may be interconnected to form a generally V-shaped structure while the body portions 50 of inner legs 10 are likewise interconnected to form a generally V-shaped construction. The interconections of body portions 36 and body portions 50 may then be placed in contacting relation with the outer surface of lower end 69 and also with the undersurface of trapezoidal plate 6 with the interconnections of body portions 36 and 50 then being fixedly secured to the lower end of the support member and to the trapezoidal plate by brazing 72 and 74.

Turning to FIG. 3, which is a sectional view taken along line 3—3 of FIG. 1, the foot members 40 may be positioned generally at the corners of a rectangle indicated as 76. The rectangle 76 has an inner side 78 that is positioned adjacent the user's foot as indicated in FIG. 1. Additionally, the rectangle 76 has an outer side 80 which is positioned away from the user's foot, a front side 82 which faces in the direction of the user's movement when the walking aid cane is used as a right-handed cane, and a rear side 84 which, then, faces away from the direction of the user's movement. When the walking aid cane is used as a left-handed cane, the front side 82 and rear side 84 are interchanged such that the front side becomes the rear side and the rear side becomes the front side.

The rectangle 76 includes inner corners 86 which correspond to the position of the foot members 40 mounted on inner legs 10 and outer corners 88 which correspond to the position of the foot members 40 mounted on outer legs 8. The outer legs 8, as described, may be formed integrally with the individual legs being joined together by a curved interconnecting portion 90 having an inner curved surface 92 which may contact the outer surface of support member 4 in forming an integral structure. Similarly, the inner legs 10 may be formed integrally with the individual inner legs being joined by a curved interconnecting portion 94 having a curved inner surface 96. The curved inner surface 96 may also contact the exterior of support member 4 in forming a rigid integral structure as illustrated in FIG. 2.

The trapezoidal plate 6, as shown in FIG. 3, has an outer side 98 which is positioned away from the user and an inner side 100 which is positioned adjacent to the user. The outer side 98 and the inner side 100 are generally parallel. Additionally, the trapezoidal plate 6 includes a front side 102 and a rear side 104 which are not parallel to each other. As indicated, the outer legs 8 are longer than the inner legs 10 and the outer legs are positioned at a different angle than the inner legs with respect to support member 4.

During usage of the walking aid cane, the greater length of the body portions 36 of outer legs 8 and the greater transverse distance between the foot portions 38 and the plane of the user's movement passing through the axis 54 of support member 4 provides side support for the user to increase the tipping resistance of the walking aid cane in a direction away from the user's body and to, thereby, increase the user's stability. During usage, the inner legs 10 are positioned closely adjacent to one of the user's feet while the user is supported by his other foot and by the walking aid cane. Thus, there is little tendency for the user to fall in a direction away from the walking aid cane. However, the user's body does not provide assistance in preventing falling in the direction of the walking aid cane. Thus, such support must be provided by the cane itself. By positioning the outer corners 88 a greater distance from the support member 4 than the inner corners 86, the walking aid cane has a greater resistance to tipping in the direction of outer side 80 than it has against tipping in the direction of inner side 78.

By making the outer legs 8 longer than inner legs 10 to provide a greater resistance to tipping in the direction of the outer side 80, problems may be encountered in the structural integrity of the walking aid cane. It is desirable that the walking aid cane be very rigid and sturdy to provide firm support for aged and infirm users. However, it is also necessary that the walking aid cane be relatively light in weight so that it can easily be lifted. These design criteria are difficult to reconcile, particularly in the present walking aid cane which has a low profile and a low center of gravity. This is so because the relatively long length of the body portions 36 of outer legs 8 provide less resistance to bending. While this could be compensated for by making the longer outer legs 8 of heavier material than the shorter inner legs 10, this would tend to defeat the design criteria that the walking aid cane be relatively light in weight.

To provide the outer legs 8 with substantially the same resistance to bending as the inner legs 10, the trapezoidal plate 6 may be shaped to give greater support to the longer outer legs than to the shorter inner legs. The portion of the outer legs 8 shown in phantom line drawing lies beneath the trapezodial plate 6 and is rigidly connected to the plate through any suitable means such as brazing. Similarly, the portion of the inner legs 10 shown in phantom line drawing is rigidly connected to the trapezoidal plate 6. Due to the shape of the plate 6, the unsupported lengths of the body portions 36 of outer legs 8 have substantially the same length as the unsupported lengths of the body portions 50 of inner legs 10. The outer legs 8 and inner legs 10, thus, have approximately the same resistance to bending when the inner and outer legs are formed of the same material and have the same cross sectional area. This is advantageous since it provides a walking aid cane which is strong and is quite resistant to bending forces imposed by the user on the body portions 36 of outer legs 8. However, at the same time, this high strength is achieved without unduly increasing the weight of the walking aid cane. Thus, the cane is relatively light and may be easily handled by an aged or infirm person.

FIG. 4 is a bottom view of a further embodiment of a walking aid cane in which like reference numerals are used to describe like structural elements. As indicated, the support for the body portions 50 of inner legs 10 and the body portions 36 of outer legs 8 is provided by an irregular shaped support plate 106. The irregular shaped plate 106 is rigidly connected to inner legs 10 and outer legs 8 in the same manner as trapezoidal plate 6 of FIG. 3. The irregular shaped support plate 106 also functions in the same general manner as trapezoidal plate 6 to, in general, equalize the resistance of the outer legs 8 and inner legs 10 to bending. By having an irregular shape, the plate 106 provides the same structural effect as trapezoidal plate 6 but does so at a lesser weight penalty. The trapezoidal plate 6 includes some material and, thus, some weight which is not essential to its function; however, the irregular shape of support plate 106 eliminates any material and weight which is not directly concerned with its function in supporting the inner legs 10 and outer legs 8.

In the embodiments of the invention described in FIGS. 1 through 4, the size and shape of inner legs 10 and outer legs 8 place the foot members 40 at the corners of a rectangle, as illustrated by rectangle 76, which will fit easily on a stair step, i.e., the length of inner side 78 and outer side 80 is less than the depth of a stair step. Such a construction is desirable since it permits the use of the walking aid cane while ascending or descending steps. In a slightly different embodiment of the invention shown in pictorial view in FIG. 5, the extremities of outer legs 112 and inner legs 114 define a rectangle which has a larger dimension than the rectangle 76 shown in FIGS. 3 and 4. The walking aid cane of FIG. 5 is not designed to be used on steps; however, the larger size of the rectangular base provided by outer legs 112 and inner legs 114 offers greater stability on surfaces other than steps.

As in the case of the walking aid canes described in FIGS. 1 through 4, the walking aid cane of FIG. 5 includes a support member 108 and a handle member 109 which is adjustably connected thereto. The support member 108 passes through a trapezoidal plate 110 with the plate, the inner legs 114 and the outer legs 112 being rigidly connected to each other and to the support member in the manner described in FIG. 2 to provide a strong and unitary structure. Similarly, resilient foot members 116 are secured to the extremities of outer legs 112 and inner legs 114 to prevent slippage of the walking aid cane on a supporting surface. Also, the trapezoidal plate 110 functions to equalize the resistance to bending, as between outer legs 112 and inner legs 114, by providing unsupported lengths of the outer legs which are substantially equal in length to the unsupported lengths of the inner legs.

The greater size of the rectangular base provided by the walking aid cane of FIG. 5 is illustrated by forward distance 118 which corresponds generally to the lengths of inner and outer sides 78 and the side distance 120, which corresponds to 80 and the lengths of front and rear sides 82 and 84 described with regard to FIG. 3. The forward distance 118 is greater than the lengths of inner and outer sides 78 and 80. Also, the side distance 120 is greater than the lengths of the front and rear sides 82 and 84 to provide a more stable base for the user, even though making the walking aid cane unsuitable for climbing stairs.

I claim:

1. A walking aid cane construction comprising:
- a central support member having an upper end, a lower end and a longitudinal axis;
- four legs rigidly connected to said lower end for contact with a supporting surface;
- each of said legs having a body portion and a foot portion;
- the body portions of said legs being generally transversely connected to said member with the foot portions depending downwardly from the outer ends of the body portions for contact with a supporting surface;
- said support member having an inner region that faces the user's leg and an outer region that faces away from the user's leg;
- said foot portions having lower ends which are positioned in a plane that is generally transverse to said support member with said lower ends positioned generally at the corners of a rectangle within said plane;
- said support member having a front region which faces generally in the direction of movement of the user and a rear region which faces generally in a reverse direction to said direction of movement;
- said rectangle having a front side and a rear side which are generally parallel and are positioned generally transverse to the direction of movement of the user;
- said rectangle having an inner side and an outer side which are generally parallel and are positioned generally in alignment with the direction of movement of the user;
- said inner side being positioned closer to the axis of said support member than said outer side and said front side and said rear side being positioned at about the same distance from the axis of said member;
- said rectangle having inner corners formed by intersection of said inner side with said front and rear sides and outer corners formed by the intersection of said outer side with said front and rear sides;
- the body portions of the legs which terminate at said inner corners being shorter than the body portions of the legs which terminate at said outer corners;
- handle means adjustably connected to said support member for vertical positioning with respect thereto and being aligned with the direction of travel, and
- support means to provide support for supported lengths of said body portions with the support means being shaped and positioned to provide unsupported lengths of the body portions which have a substantially equal resistance to bending forces.

2. The cane construction of claim 1 wherein said legs and said support means form an integral structure.

3. The cane construction of claim 1 wherein
- said legs each have a substantially identical cross sectional configuration, and
- the unsupported lengths of said body portions are of substantially equal length.

4. The cane construction of claim 1 including
- means to change the position of the handle means with respect to the support member to convert the cane from a right-handed to a left-handed cane or vice versa by reversing the positions of the front and rear portions of the support member.

5. The cane construction of claim 1 including
- resilient foot members secured to the lower ends of said foot portions, and
- said foot portions being shaped and positioned to maximize frictional contact between said foot members and a supporting surface.

6. The cane construction of claim 1 wherein
- said support means includes a plate which contacts said legs along the supported lengths of the body portions thereof.

7. The cane construction of claim 6 whereln
- said plate includes a flange, and
- said plate is connected to said support member by connection through said flange.

8. The cane construction of claim 6 wherein
- said plate has a trapezoidal configuration in which opposite sides of said trapezoid which face generally along said direction of movement are generally parallel.

9. A walking aid cane construction comprising:

a support post having a lower end and an upper handle end, said handle being aligned in the direction of travel,

four legs rigidly connected to said lower end;

each of said legs having a body portion and a foot portion;

the body portion of each leg being positioned generally transverse to said support post;

the foot portion of each leg depending downwardly from the body portion of each leg;

two of said legs being inner legs which are positioned adjacent one of the user's legs;

two of said legs being outer legs which are positioned on the opposite side of the support post from the user's legs;

the body portions of said outer legs being longer than the body portions of said inner legs, and

the outer legs being positioned to provide greater resistance to tipping of the cane in the direction of the outer legs so as to prevent the user from falling.

10. The cane construction of claim 9 including

handle means connected to the upper handle end of said support member, and

means for vertically adjusting the position of the handle means relative to said support member with the handle means being adjustable downwardly to about the point of connection of said legs to said member.

11. The cane construction of claim 9 including

resilient foot members secured to the lower ends of said foot portions, and

said foot portions being shaped and positioned to maximize frictional contact between said foot members and a supporting surface.

12. The cane construction of claim 9 including

means for generally equalizing the resistance of said legs to bending.

13. The cane construction of claim 12 wherein said legs and said means form an integral structure.

14. The cane construction of claim 12 wherein

said means includes a plate which is secured to a supported length of the body portion of each leg.

15. The cane construction of claim 14 wherein said plate has a trapezoidal configuration.

16. The cane construction of claim 14 including

a flange on said plate, and

said plate being secured to said member through said flange.

* * * * *

(No Model.)

W. D. HARMON & E. C. KELOUGE.

BAG HOLDER.

No. 524,041. Patented Aug. 7, 1894.

Fig. 1.

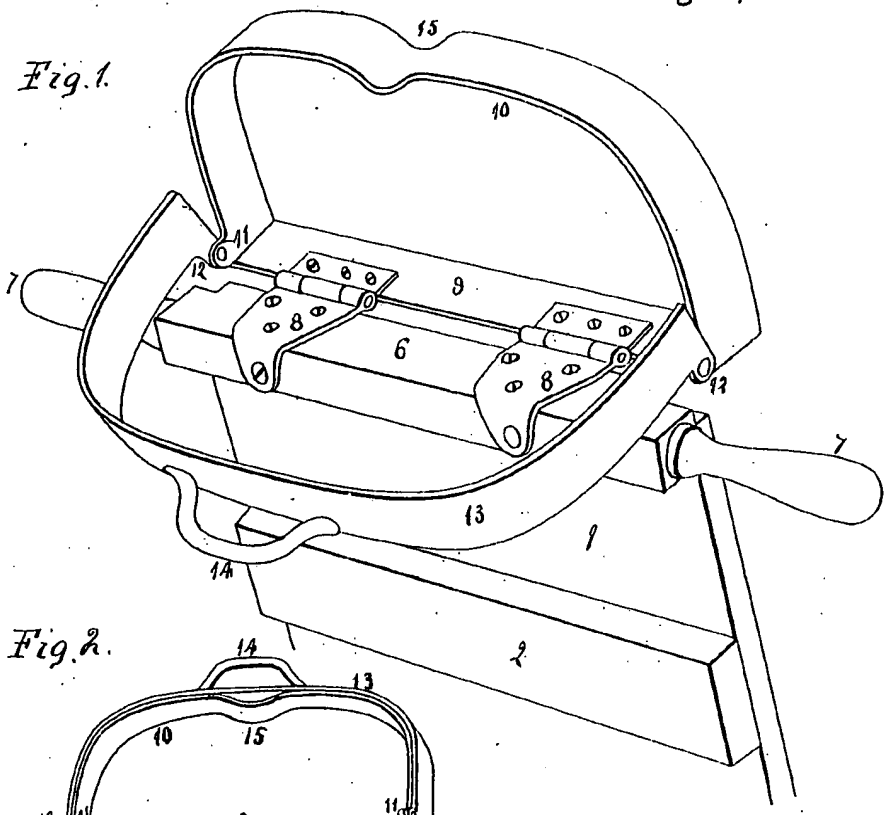
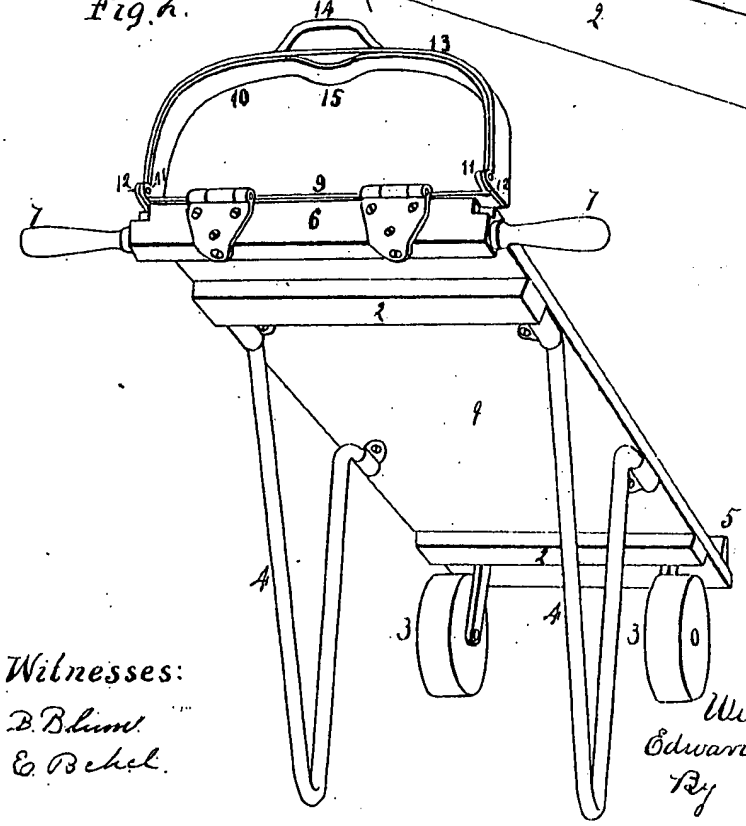


Fig. 2.



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Atty

UNITED STATES PATENT OFFICE.

WILLARD D. HARMON AND EDWARD C. KELOUGE, OF BELOIT, WISCONSIN.

BAG-HOLDER.

SPECIFICATION forming part of Letters Patent No. 524,041, dated August 7, 1894.

Application filed March 29, 1894. Serial No. 505,658. (No model.)

To all whom it may concern:

Be it known that we, WILLARD D. HARMON and EDWARD C. KELOUGE, citizens of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Bag-Holders, of which the following is a specification.

The object of this invention is to construct a bag-holder supported upon carrying wheels, and having a yoke pivoted to the end of the platform, and to this yoke is pivoted a second yoke, between which the bag is held.

In the accompanying drawings, Figure 1, is a perspective view of the upper end of the holder showing the yokes in their open position. Fig. 2, is a perspective view of the complete bag-holder.

The bag-holder platform 1, is of rectangular form suitably stayed by cleats 2, on its under side, and has supporting wheels 3, secured to its lower end, and about midway of its length to its under face are pivoted legs 4, which may fold under the platform, a bar 5, extends across the lower front end of the platform. To the upper end of the platform and transversely thereof is secured a cross bar 6, having its ends 7, in handle form, and to the upper face of this cross bar are secured hinges 8, the other leaves of the hinges are secured to the base 9, of the inner yoke 10. This yoke is provided with ears 11, located near the ends of the base, and to these ears are pivoted ears 12, extending from the ends of the outer yoke 13, and to the outer surface of the outer yoke is secured a handle 14. The upper surface of the inner yoke is provided with a depression 15. When in use the bag is placed over the inner yoke and turned into the position shown at Fig. 2, the end of the bag being held on its lower side between the under face of the base 9, and the upper face of the platform, and the upper edge of the bag will extend slightly over the edge of the inner yoke. The outer yoke is then moved upon its pivotal connection from the position shown at Fig. 1, to that shown at Fig. 2, which will pass outside of the end of the bag, and overlie the inner yoke, thereby holding the upper portion of the bag between the two yokes, the bag will lie upon the platform and after the bag has been filled, the outer yoke is withdrawn from over the inner yoke which will release the open end of the bag, the handle 14, and depression 15, form the means for separating the yokes.

When the yokes are not in use they may be folded against the face of the cross bar 6, by reason of their pivotal connection therewith. The handles 7, form the means by which the holder may be moved about, and when used as a truck the legs 4, are folded under the platform.

We claim as our invention—

A bag holder consisting of a platform, a main yoke comprising a base and a curved portion having a hinged connection with the platform the curved portion provided with ears near its connection with the base, and having an inwardly extending central depression, a second yoke provided with ears at its ends, pivot pins connecting the ears of the two yokes, this second yoke overlying the main yoke when in its closed position, and a handle extending from the second yoke which in connection with the central depression form the means for separating the yokes.

WILLARD D. HARMON.
EDWARD C. KELOUGE.

Witnesses:
L. S. HARMON,
S. W. MENZIE.

REPUBBLICA ITALIANA

Ministero
dell'Industria e del Commercio
UFFICIO CENTRALE DEI BREVETTI
per Invenzioni, Modelli e Marchi

BREVETTO PER INVE
INDUSTRIALE 57.

Classe

Luigi Mascio a Roma

Data di deposito: 6 maggio 1957
Data di concessione: 13 marzo 1958

Carrello porta borsa per la spesa

Il carrello porta borsa per la spesa oggetto del presente trovato, in canna metallica, è composto dalle seguenti parti:

Telaio fisso, a forma di J rovesciato con ruote alle due estremità inferiori e guide tubolari all'esterno dei due gomiti superiori (fig. 3).

Ripiano trapezoidale, in canna metallica saldata sulla faccia anteriore del detto telaio (lettera c figura 2).

Telaio scorrevole, anch'esso in canna metallica ed a forma di U rovesciato con analoghe guide tubolari saldate all'interno delle due estremità inferiori (figura 1).

I due telai, composti in un tutto unico, formano un carrelo la cui parte superiore ed esterna può assumere per scorrimento, le due posizioni di «corto» (fig. 4) ed «allungato» (fig. 4 parte tratteggiata).

RIVENDICAZIONI

1. - Carrello porta borsa per la spesa, caratterizzato da due telai in canna metallica, dei quali il più piccolo è nuto nello interno del più grand guide tubolari che ne permettono lo scorrimento, offrendo la possib allungare o accorciare il tutto a mento.

2. - Carrello porta borsa per la come alla rivendicazione preceden ratterizzato dal fatto che la borsa è ta di una pattina sueperiore che r mette il fissaggio al telaio nella posteriore, e fa da chiusura nella anteriore.

Il presente trovato nel suo com è formato da un carrello costituit due telai in canna metallica che po assumere le posizioni di «corto» e d lungato» (vedi fig. 4) e da una bor tessuto (fig. 5 lettera e) con manig cuoio superiormente (fig. 5 lettera f borsa è unita al carrello per mezz cinghie di cuoio sia superiormente (fig. 6 lettera g) che sul ripiano trap dale. La borsa, volendo può essere st ta dal carrello ed adoperata come borsa da viaggio.

Allegato 1 foglio di disegni

Prezzo L.

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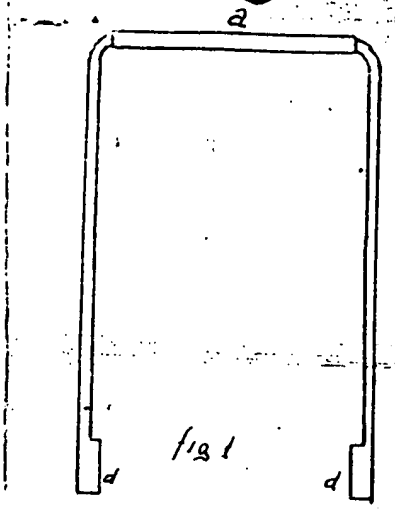

fig 1

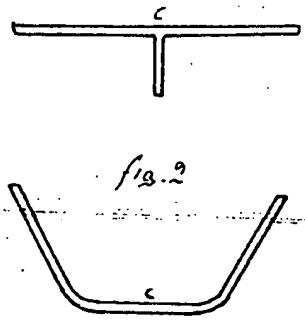

fig 2

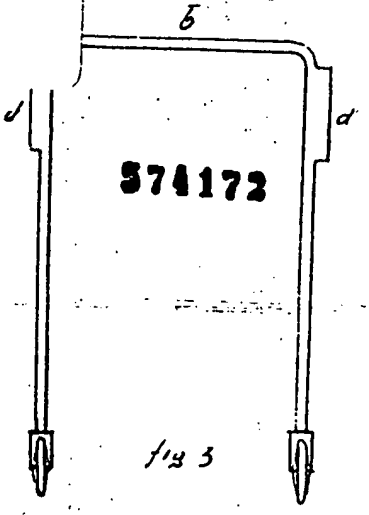

fig 3

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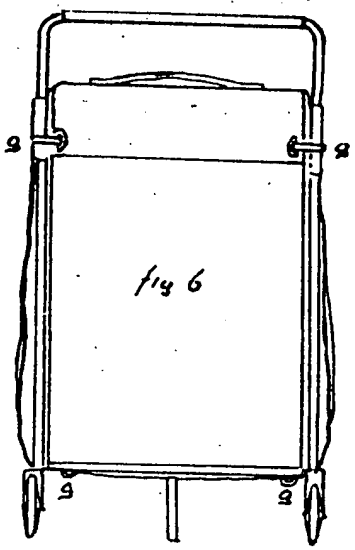

fig 6

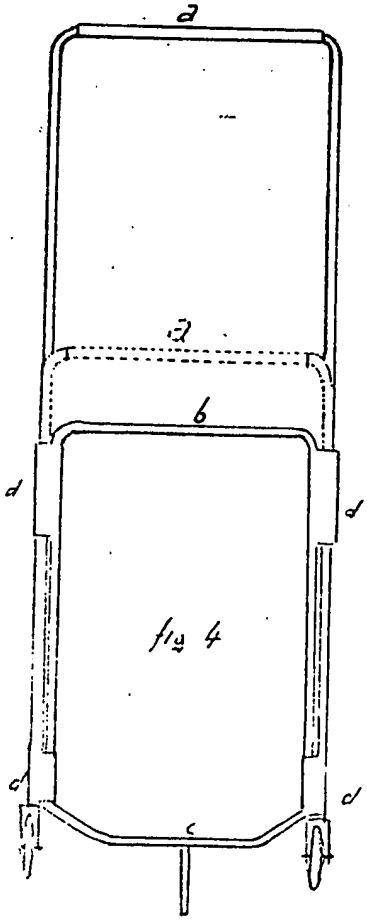

fig 4

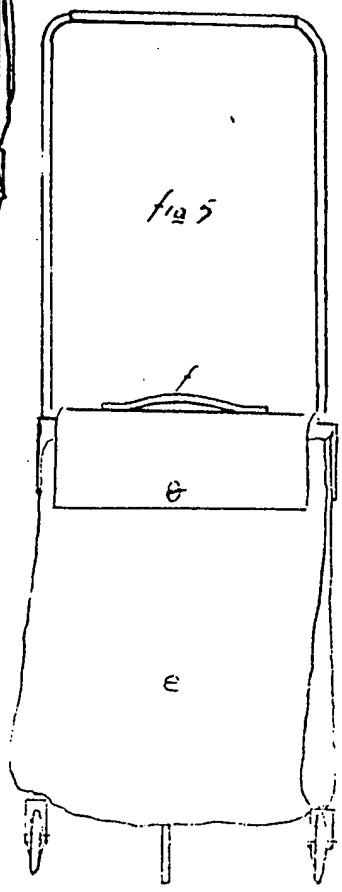

fig 5

ITALIAN REPUBLIC

PATENT NUMBER [illegible]

Ministry of Industry and Commerce

Central Patent Office
for Inventions, Designs & Trademarks

Class

Luigi Mascio, Rome

Filed: *May 6, 1957*

Granted: March 13, 1958

Shopping cart

The present invention relates to a shopping cart made from metal tubing, comprising the following members:

A stationary frame with an inverted-U shape having wheels at its two lower extremities and tubular guides outside its two upper elbows (Fig. 3).

A trapezoidal shelf made from metal tubing, welded to the front of said frame (Fig. 2, letter c).

A sliding frame, also with an inverted-U shape and made from metal tubing, having similar tubular guides welded to the inside of its two lower extremities (Fig. 1).

Assembled into a single unit, the two frames constitute a cart, the upper and outer member whereof can slide into two positions, a "retracted" position (Fig. 4) and an "extended" position (dotted lines in Fig. 4).

CLAIMS

1. A shopping cart comprising two frames made from metal tubing, the smaller of which is held within the larger by tubular guides allowing it to slide into extended or retracted positions.

2. A shopping cart as claimed in the preceding claim, wherein the bag is provided with a top flap that attaches to the frame at the rear and closes as the front

The present invention as a whole consists of a cart comprising two frames made from metal tubing, which can slide into "retracted" or "extended" positions (see Fig. 4), and a cloth bag (Fig. 5, letter e) with a leather handle on top (Fig. 5, letter f). The bag is attached to the cart by means of leather straps, both at the top (Fig. 6, letter g) and to the trapezoidal shelf. If desired, the bag can be detached from the cart and used as a suitcase.

1 sheet of accompanying drawings

Price [illegible]

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